

The Genius Issue

TIME

INVENTING THE FUTURE

BY WALTER
ISAACSON

BENEDICT
CUMBERBATCH
ON PLAYING CODE
BREAKER ALAN
TURING IN 'THE
IMITATION GAME'
PAGE 70

PLUS
**THE 25 BEST
INVENTIONS
OF 2014**

(NOT INCLUDING
THIS MACHINE) →
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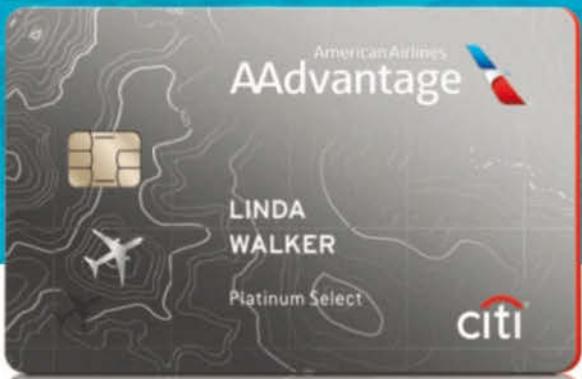
Making the world better with personalized pill packs and superbananas

97 | Play

New toys and teaching tools, including action figures for girls and a basketball that talks



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Editor's Desk

A Brilliant Mind



NO GREAT GENIUS HAS EVER EXISTED, Aristotle said, without some touch of madness. So we mortals keep a safe distance, drawn by the allure of rare talent but wary of what might go along with it. That is what makes Benedict Cumberbatch's latest performance—as the brilliant, tortured father of modern computing, Alan Turing, in the new film *The Imitation Game*—so startling to watch. As in his past portrayals of peerless minds, from Vincent van Gogh to Stephen Hawking to Sherlock Holmes, Cumberbatch captures more than the gifts that made Turing famous; he finds the humanity that makes him familiar.

After seeing the film, I marveled at how little I had heard of Turing's story: not just his seminal role in the creation of modern computing and artificial intelligence but also the extraordinary drama of England's Bletchley Park and the part played by his team of mathematicians in cracking the Nazis' Enigma code. The decrypted intelligence was known as Ultra for its beyond-top-secret value. "It was thanks to Ultra," Winston Churchill told King George VI, "that we won the war." Yet the story remained secret for decades, and Turing himself, convicted in 1952 of "gross indecency" for his homosexuality and sentenced to chemical castration, was dead by the age of 41.

I invited one of my TIME predecessors, Walter Isaacson, to explore Turing's life and legacy as an introduction to our annual Best Inventions package. "One of my goals in writing *The Innovators*," Walter says of his new book on the drivers of the digital age, "was to get amazing people like Turing the recognition they deserved. I may have helped a little, but Benedict Cumberbatch has now done that a thousandfold." Walter uses Turing's tale to explore the relationship between man and machine, the nature of free will and the possibility that computers might someday become smarter than people.

IN SELECTING THE YEAR'S 25 BEST INVENTIONS, we didn't discover any superhuman electronic brains—but we did find some exhilarating innovations. The magnetic technology of a new kind of hoverboard could be used to help



ON SET

At TIME's Nov. 9 photo shoot in Los Angeles, executive editor Tom Weber (above right) interviewed Cumberbatch, who plays computer pioneer Turing in *The Imitation Game*

stabilize buildings in earthquakes; 3-D printers can now make everything from candy to cars; and the Mangalyaan, an Indian spacecraft currently in orbit around Mars, cost less to build than the movie *Gravity*. Who knows how far that technology could go?

And then some inventions are just fun. It fell to editors Dan Macsai and Siobhan O'Connor to sample edible ice cream wrappers. The treats came packed in dry ice and were a muddy beige color. "When we first saw them, Siobhan and I just sat there staring, like, 'Do we actually have to eat these?'" Macsai recalls. "So we split one and took a bite together—and it was delicious. Like, better than actual ice cream, and healthier too."

A FINAL NOTE: THERE WERE TWO celebrities at our cover shoot in Los Angeles. There was Cumberbatch, of course. But the other star was an actual Enigma machine. "I studied World War II extensively, especially about the Enigma machine," says photographer Dan Winters, "and we thought it would be a great prop to have in the shoot." So we arranged a loan from the Computer History Museum in Mountain View, Calif., which required white-glove handling by the museum's Carol Stiglic, who carefully positioned the machine in the set that Winters had built and shipped from his Austin studio.

Nancy Gibbs, EDITOR



Out-cleans the 5 big boys.

DC59 Motorhead has better overall performance than the top five best-selling, full-size, corded upright vacuums.* It was independently tested on hard floors, on creviced hard floors and on carpets – with dust-filled bins to reflect real life use.

DC59 Motorhead has the highest geometric average results across the combined floor types, out-performing the top five big boys.

dyson
DC59 motorhead
dyson.com/nocord

*Based on competitor NPD unit sales data, MAT August 2014.

Conversation

What You Said About ...



TAYLOR SWIFT Readers had strong reactions to Jack Dickey's Nov. 24 cover story on Taylor Swift's dominance of the music industry, which was discussed in outlets ranging from NBC's *Today* show to the Los Angeles *Times*. Many praised the article, in which Swift discusses sexism and the lack of female role models in the music industry, for offering what *Vanity Fair* called "interesting insight into the Swift-ian psyche." Swift is "an excellent role model for girls," wrote Sally Connolly of South Portland, Maine. "Assertive but not abrasive, a savvy businesswoman, poet, musician and fashionista!" Others, meanwhile, questioned whether the singer merited cover treatment. "Swift is not a fascinating person," wrote Stephen Conn of Las Cruces, N.M.

BIPARTISAN BUDS Former House majority leader **Eric Cantor** called Vice President Joe Biden "awe-some" and "genuine" in a TIME.com interview with Zeke J. Miller, leading Politico to declare that "an unlikely bromance has formed." "We need more talk like this," wrote John Benjamin on Twitter, adding that Cantor, right, "probably had to leave office before he'd say it."



POLICE REBOOT "To avoid another Ferguson, stop criminalizing cops doing their duty," wrote ReneDemonteverde on our website in reaction to Joe Klein's column on the fatal shooting of unarmed Missouri teenager Michael Brown and the program to train police to handle conflict peacefully. "**By all means give the police better training, but make sure they keep order in Ferguson,**" added commenter DanBruce.

FIGHTING WORDS The Malaysia *Chronicle* called TIME's choice of MMA fighter **Ann Osman** as a Next Generation Leader an "honor" on Twitter, while @AttyKarenJimeno tweeted, "What's cooler than an #MMA fighter? A #female MMA fighter!"

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NOW ON TIME.COM

Taylor Swift left Spotify, but plenty of stars remain. Here's what the most-played artists may be earning based on figures provided by the streaming service. Find the rest at time.com/spotify.



CALVIN HARRIS
"Summer," from the singer's album *Motion*

STREAMS
203 million
PAYOUT
\$1.2 to \$1.7 million



KATY PERRY
"Dark Horse," the rap-techno song featuring Juicy J

STREAMS
196 million
PAYOUT
\$1.2 to \$1.6 million



JOHN LEGEND
"All of Me," the crooner's 2013 paean to his wife

STREAMS
194 million
PAYOUT
\$1.2 to \$1.6 million

INTRODUCING

TheVault

THE TIME VAULT We put a lot of energy into keeping readers informed, reporting on current events as they happen. And if you do that long enough, you end up creating a record of history too. With the TIME Vault, our new digital archive, we're giving you access to that history. The vault is a week-by-week account of how the world got to be the way it is today. Over the course of more than 4,500 issues, you can trace the course of the Great Depression, the path of the civil rights movement and the dawn of the information age—not to mention the ascent of everything from yoga to millennials. The TIME Vault gives subscribers the experience of flipping through every issue of TIME magazine—from the stories to the advertisements—since we began publishing in 1923. Explore it for yourself at time.com/vault.



LIFE It didn't need to be Thanksgiving for Barbara Orr to celebrate turkey. The Oregon woman was so taken with the holiday bird that she made it the theme of her 1948 wedding, not only putting turkey on the menu but also using turkey feathers for her own gown and those of her attendants. Let that be a warning to anyone who gripes about her next bridesmaid dress. Find more vintage photos and unexpected stories at life.com.

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Briefing

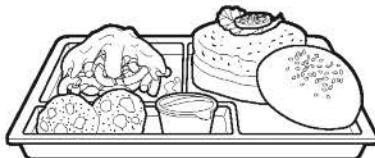
'Well, I guess I'll shake your hand, but I only have one thing to say to you: You need to get out of Ukraine.'



STEPHEN HARPER,
Canadian Prime Minister,
greeting Russian President
Vladimir Putin at the G-20
summit in Brisbane, Australia

14%

Share of 6-to-8-year-olds
who ate at least a single bite
of vegetables at lunch at
10 New York City public schools



8 million

Estimated number of
Americans who have diabetes
but are unaware of it

**'Children
have a
right to grow
up in a
family with
a father
and
a mother.'**

POPE FRANCIS,
speaking at an
interfaith conference
in Rome in support
of traditional marriage



Snapchat
The messaging app
unveiled a feature
allowing users
to send money to
friends



GOOD WEEK
BAD WEEK



**Google
Glass**
App developers
halted projects,
saying consumer
interest is
waning

**'NOBODY'S
CLIPPING
MY WINGS.'**

U.S. SENATOR ELIZABETH WARREN
(D., Mass.), saying her promotion
to the Senate leadership won't silence
her support for progressive issues



**91
million**

Number of annual
visitors to the
Grand Bazaar in
Istanbul, recently
named the
most visited
tourist attraction
in the world



**'My dad would be
so happy to see people
understanding
the healing power
of the herb.'**

CEDELLA MARLEY, daughter of musician
Bob Marley, announcing Marley Natural,
a global brand selling marijuana,
pot-infused creams, and accessories



**'The fact that they are being repeated
does not make them true.'**

JOHN P. SCHMITT, lawyer for Bill Cosby, denying the resurgent allegations that the comedian sexually assaulted
or raped various women; on Nov. 19, NBC said it had dropped plans to work with Cosby on a new sitcom



Briefing

LightBox

Snowed In

A brutal winter storm brought as much as 5 ft. (1.5 m) of snow to Buffalo, N.Y., on Nov. 19, leaving homes and roads covered with mounds of white powder. The blizzard has been linked to at least six deaths in the region.

Photograph by Carolyn Thompson—AP

FOR PICTURES OF THE WEEK,
GO TO lightbox.time.com



World

Jerusalem on Edge After Deadly Attacks

BY ILENE PRUSHER/JERUSALEM

Two Palestinian men from East Jerusalem entered a synagogue in West Jerusalem on Nov. 18 armed with knives and a gun, killing four worshippers and fatally wounding an Israeli officer before being shot dead by police. The attack was the deadliest mass killing in the city since 2008, but it was far from an isolated event.

For over a month, several Palestinian militants from Jerusalem have been staging lone-wolf attacks on Jewish Israelis. A Palestinian man killed two people in Jerusalem on Oct. 22 by ramming his car into a tram stop. Clashes between Palestinian protesters and Israeli police

in East Jerusalem have increased, adding to the sense of a rising tide of violence. (In early November, two Israeli Jews, one in Tel Aviv and the other in the West Bank, were also stabbed by Palestinian assailants.)

Why now? With the peace process stalled after the collapse of U.S.-led talks in April, a volatile mix of issues are at stake. Many of Jerusalem's Arab residents have residency cards but not citizenship and refuse to vote in municipal elections as a form of protest, leaving them with virtually no political representation. As Jewish neighborhoods and settlements expand, Palestinians say they find it difficult to obtain building permits.

But the biggest issue that seems to be pushing Israelis and Palestinians closer to active conflict is an



ancient place of worship sacred to both Jews and Muslims: the Temple Mount, or Noble Sanctuary. Some Jewish groups have been lobbying the Israeli government to overturn a ban on non-Muslim prayer there, and the Israeli Ministry of Religious Affairs has proposed easing passage for Jews who want to visit. Palestinian Authority President Mahmoud Abbas recently warned of a "religious war" if Israel shifts its policy on the site—which is administered by an Islamic trust—which led to accusations of incitement by Israeli Prime Minister Benjamin Netanyahu.

If the current violence develops into a full-scale Palestinian uprising, it would likely be waged by militants living in Jerusalem. That would be in stark contrast to the second *intifadeh*, or uprising, of 2000 to 2004, when most Palestinian combatants lived in the West Bank or the Gaza Strip.

The prospect of an enemy within now has Jewish Jerusalem on edge; retired major general Dan Ronen, the former head of Israeli police operations, suggested on Nov. 18 that Israelis should treat their Palestinian neighbors with suspicion. Meanwhile, Palestinians who live and work in West Jerusalem now face heightened security checks as well as mistrust. As the frequency of attacks increases, the status quo in the city that both peoples consider their capital is beginning to collapse.

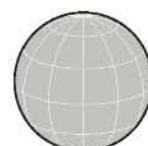
Ultra-Orthodox Jews mourn a victim of the synagogue attack in West Jerusalem

POLL

POPULARITY CONTEST

Market-research firm GfK ranked 50 countries based on how positively they were viewed by 20,000 people worldwide in terms of culture, governance and other factors.

Below, a sampling:



1
Germany



2

U.S.



23

China



25

Russia



50

Iran

BRAZIL

'This may change the country forever. How? By ending impunity.'

DILMA ROUSSEFF, President of Brazil, speaking on the sidelines of the G-20 meeting in Australia about a deepening corruption scandal at Petrobras, the state-run oil giant, on Nov. 16, two days after an investigation led to the arrest of a former senior executive. Despite her rhetoric, the probe poses a challenge for Rousseff, who chaired the company's board from 2003 to 2010.





Ebola's Toll

SIERRA LEONE Signs mark the graves of Ebola victims at a cemetery near a Red Cross-run Ebola treatment center in the eastern district of Kenema on Nov. 15. The virus is advancing rapidly across Sierra Leone, where it has killed more than 1,100 people since May. According to a government study, the outbreak threatens to wipe out social and economic gains made since the end of a devastating civil war more than a decade ago. Photograph by Francisco Leong—AFP/Getty Images

EXPLAINER

Japan's Abe Gambles on Snap Poll

Japan's Prime Minister Shinzo Abe called on Nov. 18 for snap elections, seeking a fresh mandate after Japan stumbled into recession. The unexpected slump marked a blow to his economic policies, dubbed Abenomics, to boost growth in the world's third largest economy.



Toxic tax

The recent economic slowdown can be traced back to April, when a sales-tax rise hit consumer demand. Abe has now delayed a second hike, initially due next year, until 2017.



Sagging support

As the economy wobbled, so did Abe's government, with two high-profile Cabinet ministers resigning in October amid political-funding scandals. His approval ratings have fallen to their lowest since he came to power in 2012.



What's next

Abe's ruling coalition faces a weak opposition and is likely to triumph in the coming ballot. But a reduced margin of victory could force Abe to rethink his economic program, the centerpiece of his political agenda.

WORLD

1.8 BILLION

The number of 10-to-24-year-olds in the world—a historic high, according to the U.N., which warned governments to invest in youth education, health care and job prospects or face political instability



Trending In

CONFLICT

Colombia's President Juan Manuel Santos suspended talks with the leftist guerrilla group FARC on Nov. 17 after it kidnapped an army general, a soldier and a military lawyer in a remote jungle area, throwing a two-year-old peace process into disarray.



DISEASE

Ukraine banned poultry imports from the U.K., Germany and the Netherlands on Nov. 19 after a highly contagious strain of bird flu was discovered in the three European countries.



REAL ESTATE

Mexico's First Lady Angélica Rivera, a former soap-opera star, is selling her new mansion in one of Mexico City's most upmarket neighborhoods after local media raised questions about how she financed the purchase.



Spotlight

Biological Warfare A CDC doctor on fighting Ebola

Dr. John Redd, a captain in the U.S. Public Health Service, was sent in September by the Centers for Disease Control and Prevention (CDC) to Sierra Leone, one of the three West African countries most devastated by the Ebola epidemic. The 52-year-old was assigned to Makeni, the capital of the northern district of Bombali (pop. 434,000). After six weeks battling the deadly disease, Redd returned to his home in Santa Fe, N.M., where he described his experience to Time Inc. senior editorial adviser Richard B. Stolley.



Partners Redd, right, with local medical student Francis Abu Bayor

WHAT WAS THE ULTIMATE GOAL OF YOUR WORK?

To slow down the spread and reduce transmission, because that's what really controls an outbreak like Ebola. It's the public-health measures that will end the outbreak, not treatment, as important as treatment is.

HOW DID YOU PROCEED?

First is case identification, or case finding. That means helping local authorities find people in the community as early as possible who have the disease or may have it, moving them into holding centers removed from their commu-

nity while their labs are pending, then sending patients who are positive to an Ebola treatment unit (ETU).

WHAT WAS THE EBOLA SITUATION WHILE YOU WERE THERE?

We investigated more than 800 patients with suspected Ebola, and more than half were confirmed with the disease. There were over 100 deaths, but that is probably an underestimate. There's a delay in reporting deaths from ETUs, and some deaths in rural areas are not reported. By the time I left, the numbers in our district had begun to

decrease. But in areas around Freetown—the capital of Sierra Leone—cases are still on the rise.

WHAT WAS YOUR FIRST CONTACT WITH EBOLA?

I saw my first patient the day after I arrived, through a window in a holding center in Makeni. We could not go inside. We had three holding centers with a total of 140 beds, with a physical gradation according to patient risk. In the middle of each center were confirmed patients awaiting transit to an ETU in another district. They were vomiting, had diarrhea, were very weak. Anyone who treated those patients, mostly nurses from Sierra Leone, needed to be in full protective gear in spite of the heat—near 100°F—and high humidity. Those nurses were incredibly heroic. There was another section for patients waiting for blood-test results. And a third for patients being observed for 21 days after their tests turned out negative. This separation of patients, and the nursing procedures, were all designed to minimize the risk that someone who was negative could get the disease there.

WHEN DID YOU WITNESS YOUR FIRST EBOLA DEATH?

It was the same morning. As many as eight people were dying some days.

HOW DID THE SURVEILLANCE PROCESS WORK?

We had about 100 college and public-health students, mostly men, some women, whose

classes had been canceled because of Ebola. They were the team's disease detectives. Every morning they would ride their motorbikes out to respond to alerts that a household member was ill or had died. They would call an ambulance to remove the body or take the patient to a holding center. We had only four ambulances, so sometimes we would have to ask patients to walk to the holding center. We had to be very practical about it. Then the surveillance officer would talk to the family about who might have come in contact with the patient. These contacts would be followed for 21 days.

HOW DID FAMILIES REACT WHEN THIS HAPPENED?

It could be tragic. In some cases, it was the last time they ever saw their loved one. They would say goodbye in the house, and because they were contacts, they would have to remain there and be monitored for Ebola. Getting information on that patient in the holding center could be very difficult, though the surveillance officers tried. If the person turned out to be positive, he or she would be taken away to a distant treatment unit, where sometimes they died. Those were some very touching situations.

ONCE IN THE HOLDING CENTER, WHAT HAPPENED?

They would receive medications for malaria and typhoid fever, and intravenous liquids and oral rehydration with water, sugar and salt for possible Ebola. And the blood

draw would go as quickly as possible. That had to be done in full protective equipment. It's quite a heroic job for someone to draw blood on Ebola patients all day long. Their dedication is hard to imagine.

HOW WERE THE BLOOD SAMPLES TESTED?

They had to be driven four to five hours to a CDC-run lab in a town called Bo, which would email or telephone me the results. We had more than 800 samples while I was there.

THEN WHAT?

There were many days when I would go to the holding centers to deliver blood-test results to the nurses and help with the disposition of patients. If positive, we would get that person to a treatment center as quickly as possible, but it was three to four hours away. We, the lab and the treatment center were all in different locations. One way to conceptualize this is to imagine someone is suspected of Ebola in Dallas, has to be taken to Fort Worth to draw blood, then the blood is driven to Wichita, Kans., and if positive, the patient is transported to Little Rock, Ark., for treatment. That is based on the actual drive times in Bombali.

WHAT WAS THE CDC PRESENCE IN YOUR DISTRICT?

About 60 CDC personnel were sent to Sierra Leone at any one time, and we had seven staying in Makeni and working in Bombali and an

adjacent district. Six were doctors or epidemiologists, and one was a communications specialist, because a vast part of outbreak control is educating people. We all stayed in the same hotel and often ate breakfast and dinner together. Lunch was a PowerBar at our desks. Most everybody worked until midnight or 1 a.m., but one

when I inadvertently bumped into someone at a meeting while eating.

WHAT WERE BURIALS LIKE?

Every person who died, no matter what the circumstances were, was supposed to be tested for Ebola with a cheek swab and then buried safely. The body was quickly placed in a body bag, which



Rollout Health care workers ready to search for Ebola cases

evening we all got together to relax and watch a movie I had on my laptop—*Die Hard*. It was a nice diversion.

HOW DID YOU PROTECT YOURSELF FROM EBOLA?

The most important was no touching. No shaking hands, no hugging. It was a massive societal change. I'd never been to Sierra Leone before, but I'd heard that the people were affectionate and physical. It was really something to live in that reality where you never touch another person—except a couple of times

was sprayed with chlorine by a protected burial team. Then it was taken to a new and separate communal cemetery especially set aside for this purpose. To the burial teams' great credit, they were extremely respectful. Families could not say goodbye at a funeral and could not be at the burial but could wait nearby. And after the ground was sprayed with disinfectant, loved ones could leave small memorials and markers there. Seeing that cemetery was one of the most moving experiences of my entire life.

THESE WERE HIGHLY EMOTIONAL MOMENTS. DID YOU EVER FIND YOURSELF IN TEARS?

I did cry a couple of times, but only in the evenings at the hotel, not in public. I think most of the CDC workers cried at one time or another. All of the CDC people supported one another a great deal because it was so stressful.

DID YOU FINALLY GET ACCUSTOMED TO THE DANGER?

I never felt personally threatened, but of course my risk was not zero. To keep it at zero, I would have had to stay home. We were all accepting some level of risk. But it was more the constant psychological cost of having to worry about it, of never touching people, maintaining distance, having to stay disconnected from potential patients. It was like a blanket over all our activities.

WHAT DID YOU LEARN IN SIERRA LEONE?

As a physician, I learned how quickly someone can get terribly sick from Ebola and die. As a medical epidemiologist, I saw that the public-health efforts to which CDC is contributing are going to be what eventually ends this outbreak. As a human being, I learned how hardworking and brave my Sierra Leonean colleagues are. Ultimately, what I really learned about Ebola is that it is controllable.

WOULD YOU GO BACK?

Without question. ■

Nation



Uber's Ills

Are the car service's PR woes growing pains or corporate hubris?

BY KATY STEINMETZ

UBER'S ARRIVAL IN A NEW CITY IS OFTEN MET with cheers from customers who are eager to use the popular transportation service—as well as protests from turf-protecting taxi drivers and cease-and-desist letters from government officials. Such a mixed reception is not surprising when an upstart business expands as quickly and aggressively as Uber has. But the company that aims to be “everyone’s private driver” has run into a series of PR problems lately that may not be as easy to dismiss as a yellow-cab picket.

Uber's most recent headache began on Nov. 17, when a BuzzFeed editor published a suggestion from company executive Emil Michael that Uber should spend \$1 million digging up dirt on reporters who criticize the company, looking into “your personal lives, your families.” Uber later stated that it will do no such thing, and Michael apologized. A day later, the company said it is investigating one of its top executives for tracking a journalist's Uber ride without her permission using an internal tool called God View, which allows corporate employees to monitor the location of Uber cars and waiting passengers.

The revelations are the latest obstacle for a company that has grown with remarkable

speed. In five years, Uber has gone from a San Francisco startup to an at least \$17 billion private company operating in 49 countries, thanks to its smartphone-driven model. As the customer base grew, so did the allegations of lax oversight and shoddy safety. Uber drivers have been accused of kidnapping passengers, putting a blind rider's companion animal in the trunk of a car and, in one case, attacking a passenger with a hammer.

While such stories are not typical, they bolster critics at a time when city halls and statehouses are weighing how to regulate new car services that don't fit into (and often don't attempt to adhere to) existing laws. Some cities, like Portland, Ore., have banned new services that don't follow the same operating procedures of old-style taxis. Others, like Anchorage and Memphis, are scrambling to balance demand for a modern, convenient alternative to cabs with concerns about public safety.

Some users publicly quit using the company's service after the latest flap, but Uber's rapid expansion may be proof that most people like it too much to be turned off. As Kemp Conrad, a Memphis city councilman, says of his push to legalize Uber in the River City: “It's very, very popular.”

The Rundown

ENERGY The U.S. Senate fell one vote short of approving the controversial Keystone XL pipeline on Nov. 18. The result is a setback for Senator Mary Landrieu, a **Louisiana** Democrat, who hoped passage of the measure would help her chances in the Dec. 6 runoff against Republican Bill Cassidy. Another vote on the proposed pipeline, which would connect oil sands in Canada to refineries in the Gulf of Mexico, is more likely to pass next year under the GOP-controlled Senate.



EXTREME WEATHER

76

Inches of lake-effect snow dumped on the **Buffalo, N.Y.** area in a ferocious winter storm on Nov. 18 and 19. The storm was blamed for at least six deaths and led Governor Andrew Cuomo to declare a state of emergency in 10 counties.

AUTO SAFETY Federal regulators pushed for a nationwide recall of cars equipped with potentially deadly driver's-side air bags. The Nov. 18 request expands a regional recall issued after the air bags made with parts from Japan's Takata Corp. were found to be prone to explosion, sending metal shrapnel into the car.

CRIME New Orleans will reopen hundreds of cases of rape and child abuse that were mishandled by five city detectives. An audit from the city inspector general's office found that 65% of the almost 1,300 sex-assault calls fielded by the detectives from 2011 to 2013 were filed as “miscellaneous,” with no report written.

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Voices

GEORGE H.W. BUSH

The 41st President of the United States

From my bride of nearly 70 years, to our caring and giving children and grandchildren, and now to our four great-grandchildren (with another one on the way!), my cup truly runneth over. I continue to marvel at the neighbor-helping-neighbor spirit of the American people—something I call being a Point of Light. I'm thankful not only for every man and woman who wears our nation's uniform to defend our liberties and cherished way of life, but also for their families, who help bear this necessary burden. They do so not for fame or fortune but for love of country. For these blessings, for the many opportunities we had to serve our country, for parachutes that work and for so many friends who make life sing, I am truly thankful—always have been and always will be.



Time for Thanks

Some grateful Americans count their blessings

BY TESSA BERENSON

IT'S THAT TIME OF YEAR AGAIN, WHEN AMERICANS baste turkeys, bake pies and give thanks.

This year, public figures shared with TIME their diverse gratitude—from a Nobel winner thankful for new light to a former President's embrace of his ever growing family. See the full collection at time.com/timethanks.

**'I AM
THANKFUL
FOR ...'**



CHELSEA PERETTI
Actor, comedian and writer

I'm thankful for my grandmothers. One kook, one straight shooter, they led me by example. They taught me that women are real human beings, not idealized one-dimensional accessories.

I'm thankful for my family, as it expands in very wonderful directions. This Labor Day, my son Kevin proposed to his boyfriend Kyle. On paddleboards. In the middle of a lake. With a handmade titanium earring shaped like the infinity symbol. Every time I look at Kyle's engagement earring, I silently hope that other LGBTQ people will have the same joy in their lives as he does at this moment.



JODI PICOULT
Author


JOHN KERRY

The 68th U.S. Secretary of State, who also served four terms in the Senate

When I was an 11-year-old kid, I spent Thanksgiving in a bitterly divided Berlin, in deep trouble after I'd biked through the Brandenburg Gate to explore East Berlin. Fifteen years later, I marked the holiday with five fellow sailors and a lukewarm plate of scrambled eggs on a patrol boat in Vietnam. In 2007, I spent Thanksgiving weekend with Nelson Mandela.

I am thankful this year for a world that proves near miraculous change is possible: where Cold War rivalry gave way to a united Germany and a democratic Europe, where war-torn Southeast Asia became a magnet for growth and where the era of apartheid ended with the dawn of a new era marked by reconciliation and truth.

Faith in our collective power to resolve intractable problems is a gift that should inspire us all this Thanksgiving. I give thanks for the activists and "troublemakers" across the globe who speak up for better government and the rule of law; for those who defend dignity and rights while honoring the rights of others; for our armed forces and diplomats; and for all who rebel against the counsels of complacency and defeatism and who welcome the opportunity to achieve what others say cannot be done.



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**LAWRENCE LESSIG**

Professor
at Harvard Law
School and
legal activist

I'm thankful for the people willing to be crazy in their time—not for themselves or for their time, but for a future they know must be. The abolitionists, decades before the 13th Amendment ended slavery. The women who thought the 14th Amendment secured equality to them too, a century before the Supreme Court agreed. Or my current favorite, Doris Haddock, a.k.a. Granny D, who on Jan. 1, 1999, at the age of 88, began a walk across the United States with a sign on her chest that read, "Campaign Finance Reform." These people sacrifice something in the present for something important in the future. They have, as Vaclav Havel puts it, not optimism but hope. The certainty that their cause makes sense. That it is just. And that someone, sometime, has finally got to stand up for it.

CONNIE BRITTON

Actor

Even on my worst days, the instant softening and loving that my son gives me without ever knowing he's doing it, without any premeditation or self-consciousness, is something I could never have imagined, yet always dreamed of.

**TOM FRIEDEN**

Director of the U.S. Centers for Disease Control and Prevention

This Thanksgiving Day, 170 CDC disease detectives, public-health experts and communication specialists will be in West Africa, fighting the Ebola epidemic. They aren't doing it to get rich or famous, and they won't get thank-you letters from the millions of Americans and others around the world who won't get sick or injured because of their work. But we all owe them thanks for the work they do to keep us safe and healthy.

MICHELE BACHMANN

Retiring U.S. Representative for Minnesota's Sixth Congressional District

As a former foster mom to 23 at-risk girls, I am thankful for the many Minnesota heroes who care for foster children and adopt them: Mark and Julie Martindale of Elk River, who have adopted nine children with disabilities; the Malikowskis of Sartell, who adopted their daughter from Ethiopia; and the Ryghs of Bayport, who adopted their son from Jamaica.

In the United States, there are 400,000 children living without permanent families. Of those, more than 100,000 children are eligible for adoption. Each year, 23,000 of them will simply age out of the foster-care system without finding permanent homes.

**SHUJI NAKAMURA**

Winner of the 2014 Nobel Prize in Physics for work on light-emitting diodes

I'm thankful for the impact that LED lighting has on the world: energy-efficient, high-quality yet low-cost lighting can positively impact many people in need around the globe.



Milestones



KILLED

Peter Kassig

U.S. aid worker and ISIS captive

By Nick Schwellenbach

Peter Kassig, whose death at 26 was claimed by the Islamic State of Iraq and Greater Syria (ISIS) on Nov. 16, was brave, intense, sensitive, tough, thoughtful and humble. He was a former Army Ranger who had served in Iraq but found he couldn't sit in a university classroom in Indiana while Syrians died and refugees suffered. I met him in Lebanon in May 2012 during this pivotal point in his life. He was volunteering in hospitals treating refugees and delivering supplies on risky trips to Syria, where civil war raged.

I'll never forget talking for hours into the night on the roof of Saifi Urban Gardens in Beirut about his complex feelings on U.S. foreign policy, his time as a Ranger in Iraq and his restless desire to do more to help, to try to heal the wounds of war. While wandering the streets with him, I saw that he'd continually bump into people he had befriended in his short time there, partly because of his early efforts to help in Palestinian camps. "At the end of the day, this work is really the only thing I have found that gives my life both meaning and direction," Peter told me in an interview for TIME.com in early 2013.

ISIS militants captured Peter when he was on an aid mission to Deir ez-Zor in eastern Syria in October 2013. He reportedly converted to Islam while in captivity and took the name Abdul-Rahman. He didn't hide his fear of death in a letter smuggled to his parents this summer. But even in this state he sought to comfort them: "Just know I'm with you. Every stream, every lake, every field and river. In the woods and in the hills, in all the places you showed me. I love you."

Peter affected all those around him with energy and warmth. He is someone whose flame will burn in my thoughts until I die.

Schwellenbach is a former freelance journalist who now works for the U.S. Office of Special Counsel

KASSIG: KASSIG FAMILY/AP; KNOWLES: FERGUSON: GETTY IMAGES; LARSON: ROCCO CESELIN—AP

APPOINTED

Megan Brennan, as U.S. Postmaster General, the first woman to hold the position. She currently serves as the U.S. Postal Service's chief operating officer. Her predecessor, Patrick Donahoe, served for four years.

DIED

Sierra Leone surgeon **Dr. Martin Sallia**, 44, after being flown to a hospital in Omaha to be treated for Ebola. He was the sixth doctor from Sierra Leone to die of the disease.

MARRIED

Singer **Solange Knowles** and video director **Alan Ferguson**. The bride's sister Beyoncé and brother-in-law Jay Z were in attendance.



DIED

Jane Byrne, 81, who served as mayor of Chicago from 1979 to 1983 after being mentored by Mayor Richard J. Daley. She remains the city's only female mayor.

HACKED

The U.S. State Department's unclassified email system, by unknown cyberattackers. Officials said classified mail was not compromised.

DIED

R.A. Montgomery, 78, author and publisher who launched the popular *Choose Your Own Adventure* children's-book series. The franchise began under the name *The Adventures of You* with an interactive book by Ed Packard.

DIED

Glen A. Larson
TV writer and producer
By Tom Selleck

I first met Glen A. Larson in 1979, when he wanted me to do a show called *Magnum, P.I.*, which was a nice position to be in. Glen, who died on Nov. 14 at age 77, was one of those guys I knew of as a giant in our industry—he had already created *Battlestar Galactica* and the medical drama *Quincy, M.E.*—and I was really flattered.

At one point we were talking about some problems I had with the script, and he said I should come see him in Hawaii, where the show took place and where he had a house. I said I couldn't because I was taking care of my teenage son. He said, "Well, bring him!" I said he would get bored, and he said, "Have him bring a friend." He really wanted me there, so I went. Money seemed to be no object—we went out to dinner every night that week.

It was the beginning of a friendship that lasted for many years as he created shows like *Knight Rider* and *The Fall Guy*. Glen had a gracious quality and a wonderful sense of irony about life. Every time he called, I was happy to call him back, and every time I saw him, I was happy to see him. I saw him for the last time about a year ago, and he seemed fine. The news was shocking—guys like Glen you think will live forever.

Selleck is an Emmy- and Golden Globe-winning actor





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Rana Foroohar

A Big Bet on Manufacturing

General Electric's plan to make things again is a test for the entire U.S. economy



IF ONE COMPANY MIRRORS THE TRAvails of American business over the past decade, it's General Electric. The manufacturing giant founded by Thomas Edison in 1892—and the last of the original firms in the Dow Jones industrial average still listed on that index—grew into a multinational powerhouse that made everything from lightbulbs to locomotives as the U.S. became the world's lone superpower. Its nickname said everything: Generous Electric. But by the time the 2008 economic crisis hit, GE had gone from being an industrial innovator to being the country's sixth largest bank, relying on financial wizardry rather than engineering to satisfy investors.

Perhaps the most enduring quality of the broader economic recovery since then has been the gap between reality and perception. While growth and jobs are up, only about 1 in 4 Americans believes the economy is getting stronger, according to a recent survey by the investment firm BlackRock. The reason is clear: personal incomes aren't rising, except at the very top. Historically, the key to achieving broad income growth has been creating more middle-income jobs. And those have traditionally come from the manufacturing sector.

Which is partly why, in order to save his company, CEO Jeffrey Immelt borrowed \$3 billion from Warren Buffett and vowed to retool GE—away from complex financial schemes and back toward making things. GE, in other words, is trying to do what the U.S. as a whole needed to do: rebalance its economy and get back to basics.

So, six years on from disaster, how is it going?

MIMMELT HAS MADE PROGRESS. WITH THE RECENT spin-off of GE's consumer-finance division, which peddles financial products ranging from private-label credit cards to auto loans, the share of profits that comes from finance has gone from more than half to about 40%. The target is to get it back down to around 25%. As CFO Jeff Bornstein recently put it to me, "We had to decide whether we wanted to be a tech company that solves the world's big problems or a finance company that makes a few things."

GE's executives are betting on a few megatrends, including the belief that emerging-market economies are entering a period very much like the post-World War II period in the U.S. Those countries will need new houses, bridges, roads, airports and all

types of consumer goods in unprecedented quantities. The McKinsey Global Institute estimates that by 2025, emerging-economy nations will spend more than \$20 trillion a year in this way. That means that future economic growth may well be centered on making things, rather than trading on their value.

To help capture its share of that action, GE is trying to copy some of Silicon Valley's methods. The company has set up a "growth board" that operates like an internal venture-capital firm, vetting new ideas presented by employees and then dishing out a bit of time and capital to explore them. The result is that production cycles for projects like new oil-drilling equipment or LED lighting systems are shortening dramatically. An idea that once took two years to test might go from paper to production in 45 days.

The firm is also sourcing new ideas from the crowd. One recent design for a bracket on a jet engine came from a 22-year-old in Indonesia who had tapped into a website where the company posts problems and offers payouts to whoever can solve them.

WHERE THE JOBS WILL COME FROM



SHORT SUPPLY
By 2025, the construction industry worldwide will need to build new square footage equivalent to 85% of today's entire residential and commercial stock



LONG DEMAND
Annual consumption in emerging markets is expected to rise to **\$30 trillion** in the next 10 years, accounting for nearly 50% of the world's total

Source: McKinsey Global Institute

STILL, THE BIG QUESTION IS JUST HOW MANY good new jobs America's industrial firms, small and large, will actually create in the coming years. So far, the trends are positive. In October, the Boston Consulting Group's annual survey of senior manufacturing executives found that the number of respondents bringing production back from China to the U.S. had risen 20% in the past year. GE's new hub in San Ramon, Calif., which was launched more than two years ago to explore the burgeoning "Internet of things" (i.e., machine-to-machine communication via the Internet), has gone from zero employees to more than 1,000. The company is also using more local small and midsize suppliers, thanks to new technologies like 3-D printing that let startups achieve more speed and scale.

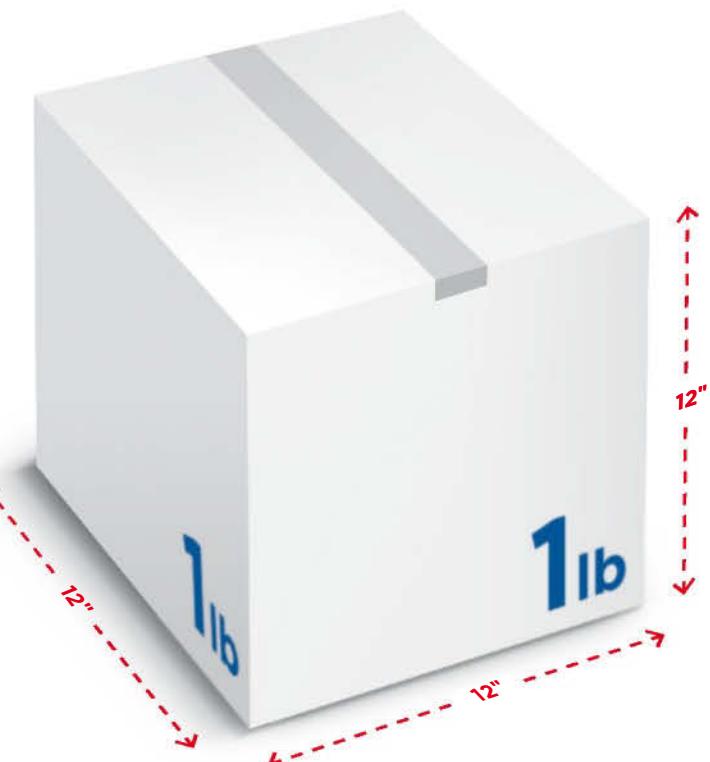
Such trends at GE and elsewhere have yet to replace the 1.6 million manufacturing jobs lost in the recession. The good news about our postcrisis economy is that it is smarter and nimbler and growing in the right sectors. The bad news is that it still doesn't have enough good jobs for those who need them. The way forward may be clear, but getting there is another story. ■

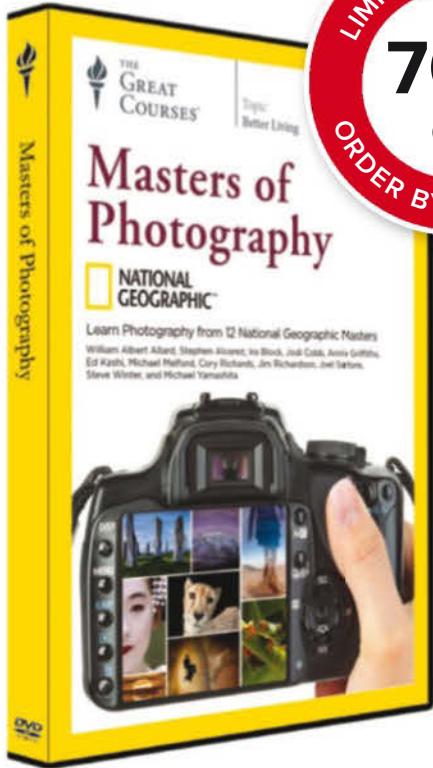
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Seth Lipsky

A Constitutional Moment

The Founding Fathers were clear about who sets immigration policy

THE COMING CLASH BETWEEN PRESIDENT Obama and Congress over immigration promises to light up what I like to call a constitutional moment. This is a moment in which our politics are so divided that we have scraped away the soil of legislation and are fighting on American bedrock. Rarely has it shone more clearly than in respect of who has the power to decide who can come here and be naturalized as a citizen.

This is one of the reasons we seceded from Great Britain. King George III had been interfering with immigration to the colonies. It was one of the complaints enumerated in the Declaration of Independence. The British tyrant, the Americans declared, had endeavored "to prevent the Population of these States." For that purpose, they said, George III had been not only "obstructing the Laws for Naturalization of Foreigners" but also "refusing" laws "to encourage their Migrations hither."

THE ARTICLES OF CONFEDERATION THAT FIRST bound the newly independent states failed to solve this problem. Each state set its own policy on naturalization, with the potential for chaos. Hence the founders, who gathered in 1787 in Philadelphia to write the Constitution, granted to Congress the power to "establish an uniform Rule of Naturalization." They could have granted this to the President or left it to the states, but they assigned it instead to Congress.

So Obama, in threatening to act on his own, is playing with constitutional fire. It's not that I object to his liberality on immigration. On the contrary, for years I was part of the *Wall Street Journal's* editorial page. It reckons that it would be illogical to stand for the free movement of trade and capital absent the free movement of labor. It once called for a constitutional amendment saying "there shall be open borders."

That is based on the idea of human capital, the notion that in a system of democratic capitalism people have an incentive to produce more than they themselves consume. This system discovers that more people lead to a richer society for all. In my generation, this point animated the campaign for America to take in the boat people escaping Vietnam after the communist conquest. What a windfall they turned out to be.

I have also long plumped for a merger of pro-immigration activists and pro-life conservatives.

IMMIGRATION NATION



HAMILTON
Determining the naturalization rule will leave a discretion to the legislature.



MADISON
America is indebted to emigration for her settlement and prosperity.

SOURCE: *The Writings of James Madison, Volume IV*

A movement that cherishes pro-life principles contradicts itself when it emerges against immigration. Better to press consistently for the idea that more people are better, particularly in a country as underpopulated as the U.S., which ranks near the bottom of the world's nations in population density.

ALL THAT, THOUGH, IS TRUMPED BY THE CONSTITUTION. It not only seats naturalization power in Congress but also gives it almost total sway. The founders discussed adding language relating to how long someone must reside in America before becoming a citizen. In the end they required of Congress only that its rule be "uniform." They didn't want the states feuding over this and setting competing policies. They wanted a united front to the world.

Nor, the record suggests, did they want the President setting policies on immigration and naturalization. There may be talk about Obama having presidential "discretion" in enforcing immigration laws, but the record of the Constitutional Convention makes clear where the founders wanted discretion to lie. "The right of determining the rule of naturalization will then leave a discretion to the legislature," James Madison quotes Alexander Hamilton as saying.

Madison followed by remarking that he "wished to maintain the character of liberality" that had been "professed" throughout the states. He was not for open immigration. He "wished to invite foreigners of merit and republican principles among us." He noted that "America was indebted to emigration for her settlement and prosperity" and added, "That part of America which had encouraged them most had advanced most rapidly in population, agriculture, and the arts."

The Founding Fathers were not naive. They worried plenty about intrigue by what Madison, at one point, called "men with foreign predilections" who might "obtain appointments" or even seek public office. One can imagine that they would be horrified by the loss of control of the southern border, the lawlessness, the abuse of welfare and the scent of rebellion north of the Rio Grande. But the founders also feared a King—or a President who acted like one. They wanted the question of immigration settled by Congress and wrote an impeachment clause that glints in the fray.

Lipsky is the editor of the New York Sun

Joe Klein

Tackling Immigration Alone

The President has good reason to bypass Congress. But he'll pay a price



CAN THE PRESIDENT OF THE UNITED States, wielding a magic pen, simply exempt approximately 5 million illegal immigrants from the threat of deportation? You bet he can. He has the power to set law-enforcement priorities. In 2012, Barack Obama ordered that children brought across the border by their parents and raised in the U.S.—the so-called Dream Generation—should not be targeted for deportation. He can expand that ruling to their parents and others. Both Ronald Reagan and George H.W. Bush took similar actions on a smaller scale. The question is, why on earth would the President want to do it now, after the disastrous election of 2014? Newly minted Senate majority leader Mitch McConnell said it would be like “waving a red flag in front of a bull,” which may have been more artful than literal. McConnell also said that he wouldn’t shut down the government (nor will the Republican leadership move toward impeachment). The President may have simply calculated that signing his executive actions would be more like waving a tissue in front of a goat.

T IS NOT IMPOSSIBLE THAT OBAMA IS PLAYING some hard-nosed politics here, even if his primary motivation is soft-nosed and idealistic. It is simple humanitarian justice not to separate families by deporting the parents of the Dream Generation. If John Boehner had brought last year’s bipartisan Senate immigration bill to a vote in the House, the situation might have been happily resolved. “But it’s like waiting for a bus that never comes,” says David Axelrod, a former Obama aide. The Republican definition of immigration reform is unacceptable to most Democrats. It consists of more money for border security and a fast track for skilled foreigners who want to immigrate; it does not include a path to legality for the 11 million undocumented immigrants already here. Obama no doubt calculated that negotiations with the GOP on this issue were futile. On top of that, the President may not be too pleased with the members of his inner circle who told him to delay his executive actions last summer for “political” reasons, as he so awkwardly put it—that is, to save some Democratic Senate candidates who ultimately could not be saved. This President does not like to come off as tawdry or political. A quick executive move now is a way to rectify the games he’s played with Latinos. But it also may be effective politics. In the long

POTENTIAL BIPARTISAN BACKLASH



GOP VOTES
McConnell and his fellow Republicans fared slightly better among Latinos in the 2014 midterms than they did in 2012. If they overplay their opposition to Obama’s actions, they could pay a price in 2016.



PRESIDENTIAL CONSISTENCY

Obama once said that executive actions would be “essentially ignoring the law in a way that I think would be very hard to defend legally.” Look for the GOP to echo those words.

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term, every time the Republicans start screaming and stomping about illegal Mexicans, it cements the Latino relationship with the Democratic Party, a demographic boon. There will certainly be a lot of screaming when Obama goes ahead with his plan—and then we will celebrate Thanksgiving and Christmas, a traditionally fallow political period, and the immigration issue will be ancient history by the time McConnell convenes his Republican-majority Senate in January. Hence, another calculation: Despite the immigration order, the Republicans will still want to do business with the President. They will want to demonstrate that gridlock was all Harry Reid’s fault. The Republican Senators up for re-election in 2016 will need some bacon to bring home. There are trade bills that Republicans will certainly want to pass, and infrastructure bills, and perhaps even some tax reform. Obama will share the credit for those middling triumphs, and he’ll seem tough besides, having blasted through the “red flag” and gotten stuff done.

BUT THERE WILL BE CONSEQUENCES. BY MOVING ahead with the immigration plan, Obama sacrifices any leeway he might have had with Republicans on a range of more difficult issues. He was going to have a tough time selling an Iran nuclear deal—if there is such a deal—to Congress, but it could become impossible now. There will be all sorts of Obamacare challenges, some of which might have been avoided if the President had not pierced the illusion of comity. Democrats will argue that Obama was played for a sucker every time he anticipated the possibility of Republican compromise, and there is a lot to that. But that may well have been the last war. The coming legislative battles could be more subtle and pliable.

“He may be trying to goad us into doing something stupid” like shutting down the government or moving toward impeachment, says Tennessee Republican Lamar Alexander. “But that’s not going to happen.” Indeed, Republicans have been talking in more surgical fiscal terms—defunding specific programs, like those that would implement the executive actions, rather than a wholesale shutdown. Worse, Obama’s immigration actions, noble as they might be, fly in the face of the national mood. At a moment when the public desperately wants some sort of reconciliation, he is sticking a finger in McConnell’s eye. After playing the reasonable grownup for the first six years of his presidency, he is giving up the high ground. ■

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Pikeville, KY*





Hitting his marks Ramos' Sunday-morning show, *Al Punto*, often draws more young viewers than its English-language competitors



NATION

América's News Anchor

Jorge Ramos is not just another journalist.
And his opinions count with millions
By Michael Scherer/Miami

BLUE JEANS ARE NOT THE ONLY thing Jorge Ramos hides behind the anchor desk at *Noticiero Univision*, the U.S.'s most watched Spanish-language newscast. A flat screen sits at his feet, inclined upward to show what the other big networks—NBC, CBS and ABC—are doing each weeknight at 6:30 p.m. He tends to like what he sees.

"We've spent more than 10 minutes on Mexico and immigration," he says on a recent Thursday after cutting to commercial midway through the news. "None of the other networks have done anything." The show started with details of President Obama's likely plan to provide work permits to as many as 5 million undocumented immigrants. The competition led with winter weather and recent Secret Service failures. "It's like parallel worlds," Ramos continues. "If you are Latino, who are you going to watch?"

That question once mattered mainly to admen in Los Angeles and Miami. Today it is reshaping the American political landscape, with Ramos, a trim 56-year-old in a skinny tie and no camera makeup, forcing the issue. For his audience, he is not just a newscaster but also an advocate and agitator. For the rest of the American public, he is increasingly the face of a demographic wave—the man pollsters identify as the Latino community's most respected and influential leader, with a Q score that places him somewhere between soccer maestro Lionel Messi and pop starlet Shakira.

There were about 15 million Stateside Latinos when Ramos started working in the U.S. in 1984 as a cub reporter just arrived from Mexico, filing three stories a day from the Los Angeles streets. By 2055, nearly a third of the U.S., or more than 120 million people, will have Spanish-speaking ancestry. The Nielsen ratings have genuflected. A newscast most Americans cannot understand now beats the *CBS Evening News* nationally among adults under 35 and has been thumping all the major networks with the target demographic in seven major urban markets, including New York City, Dallas and San Francisco.

If language was what separated Ramos from the competition, his would be a business story, like salsa outselling ketchup.

But the language is easy to overcome, a fact Ramos happily highlights as he broadens his reach through punditry on CNN and Fox News or English broadcasts on the emerging cable channel Fusion. The real difference is in how he approaches his audience and his interview subjects.

To Ramos, an undocumented immigrant is just a *trabajador inmigrante* (immigrant worker). The new President of Mexico is just another in a long line of political failures who must be exposed. And the leaders of the U.S., from the President down to a local Arizona sheriff, are disappointments in need of scrutiny.

You can see it here, in the Univision studio in Miami, on just about any day. As the show winds down, Ramos introduces a final piece, about two window washers—"dos Hispanos," he says—who had been trapped by a broken support cable 69 stories in the air at One World Trade Center. While the segment plays, he looks up from the desk, and I ask him why he identified them by ethnicity in his introduction. "Who else would risk their lives like that?" he asks me in return.

The camera goes live again. "We were just commenting, Jorge, that it takes an Hispanic to dare to do a job like this," says Maria Elena Salinas, his co-anchor, now speaking in Spanish to an audience of more than 2 million. Ramos doesn't miss a beat. "Our great workers are invisible to the rest of the United States," he says, "but they are there in the most dangerous jobs."

The Interrogator

BY DISPOSITION AND DESIGN, JOURNALISTS are students of the unseen. But for Ramos, visibility is a passion that runs deeper than his profession. He regularly points out that Latinos now make up 17% of the U.S. population but hold only three seats in the U.S. Senate. "The idea of being invisible has been ingrained in our culture for too long," he tells me after the show. "Now with the new numbers we are being seen. Our voice is being heard."

He is talking about that day's news report on Obama's decision to use his executive powers to give legal status to millions of immigrants living in the U.S. without documentation. Ramos thinks the action is long overdue, and for years he has



openly demanded a path to citizenship for the country's 11 million undocumented immigrants. He has repeatedly hammered Obama's Administration for deporting more people than that of any other President in history. His expectations for the coming executive action are high. As he told White House spokesman Josh Earnest after an interview in early November, the President would be seen as "too cautious" if he gives legal status to only 2 million when he acts.

Hidden in that remark is a veiled threat. Through his nightly newscast, weekly bilingual newspaper column and Sunday political show, Ramos has the ability to shape, as much as he reflects, Latino public opinion. How he receives the President's actions will help set the political narrative going into the 2016 election. Indeed, Obama chose to announce his new plan in prime time on Nov. 20, at the very moment the Latin Grammys were due to start broadcasting on Univision; the network agreed to delay the show to take Obama's remarks live.

In a recent broadcast for Fusion, a cable and digital-media company co-owned by Univision and Disney-ABC, Ramos said the southern border fence reminded him of the Berlin Wall, a comparison that put the U.S.



Fusion anchor From a vast newsroom outside Miami, Ramos reports in two languages

Border Patrol on the side of the Stasi. "No government should be in the business of deporting children," he declared last summer during the unaccompanied-minors crisis that yielded bipartisan calls for mass deportations. To him, these are just basic values, Latino values, immigrant values. "For Latinos, the mission is to go from numbers to power," Ramos says of the executive actions. "President Obama is doing this not only because he is a nice guy. He is doing this because he's been pressured."

No other news anchor in America, save perhaps news comedians like Jon Stewart, would talk like this, nakedly championing the interests of an audience on an issue that divides the country. As a rule, broadcast news covers immigration as a political fight, giving equal time to Republicans who claim the President is thwarting both the people's will and the Constitution.

But Ramos never wanted to be Walter Cronkite or Peter Jennings. Ask him for a role model, and he points to Oriana Fallaci, the irascible Italian journalist who caused Iran's Ayatollah Ruhollah Khomeini to walk out of an interview in 1979. With a sharp pen focused on oppressive regimes, she described questions as weapons and every interview as a war with only one win-

ner. Ramos grew up in Mexico City chafing against the corrupt and undemocratic Mexican political system. He was in grade school when Fallaci was shot along with dozens of Mexican protesters during the 1968 military massacre of students. She survived three bullet wounds and filed her story.

Ramos arrived in journalism believing that irreverence was a prize, not an error, and that journalism was a craft best approached with "the relentlessness and rebelliousness of youth." The question that cut the deepest was often the one that most needed to be asked. Ask the right question at the right moment, he says, and the journalist could "break" a world leader.

Just weeks before the 2012 election, Ramos conducted perhaps the toughest interview Obama has endured in office. He didn't even begin with a question, just a reminder that Obama had promised to tackle immigration reform in his first year of office. "Before I continue, I want for you to acknowledge that you did not keep your

promise," Ramos said before a live audience in Florida. The President tried to explain away the delay by blaming circumstance and Republicans, but Ramos wasn't satisfied. "I don't want to get you off the explanation," he said. "You promised that. And a promise is a promise. And with all due respect, you didn't keep that promise."

Two years later, Ramos crashed a Capitol Hill news conference to ask House Speaker John Boehner why he was blocking a vote on immigration reform. The Speaker tried to dodge the question, redirecting the blame at the White House, but Ramos interrupted. "You could do it, Mr. Speaker, but you really haven't done it." The best the scowling Boehner could manage in reply was "I appreciate your opinion, thank you."

In both cases, Ramos knew the answers before he asked the questions. "You do it simply to confront those who are in power," he says. Evo Morales abruptly ended an interview after Ramos asked the Bolivian President about drug trafficking and pressed him to admit that Cuba's Fidel Castro was a dictator. The late Venezuelan President Hugo Chávez flew Ramos to the Colombian border, surrounded him with supporters in a small-town basketball court and proceeded to denounce his questions as *basura*, or garbage. Long before Mexican President Enrique Peña Nieto was ensnared in scandal over a government contractor's sale of a \$7 million house to his then fiancée on initially undisclosed terms, Ramos asked him point-blank, "Are you a millionaire?" "I am not," Peña Nieto replied, a clip that has found new life on social media in recent weeks.

The U.S. political scene is littered with Ramos zingers. Just before the 2012 election, Ramos asked Mitt Romney, "You said that God created the United States to lead the world ... With all due respect, how do you know that?" His interview with Hillary Clinton this summer began, "Do you think you have a Latino problem?" He went on Bill O'Reilly's Fox News show and said, "I see you criticize President Obama. But you didn't do the same to President Bush. I saw your interview. It was weak."

For Republicans, his approach, which slants left on the issues, is an unjust outrage. Al Cardenas, a former chair of the

Florida Republican Party, has compared Univision's editorial approach to "a plantation mentality," the crooked assumption that the Latino community is monolithic on issues like immigration. (In a recent national poll by Latino Decisions, 1 in 4 U.S. Latinos approved of Republicans' handling of immigration policy in Congress.) Isaac Lee, a former magazine editor who is Ramos' boss at both Univision and Fusion, dismisses such claims. "I'm glad he is standing up for his community," Lee says. "Nobody is going to get to the White House without talking to Fusion and Univision."

Breaking Ramos

SHORTLY AFTER I SAT DOWN WITH RAMOS in his office, I asked who he thought was winning our interview. He laughed, without offering an answer. Over the subsequent hour of conversation, he never objected to the questions, no matter how grating, though caution sometimes crept into his responses.

We began with the lines he has drawn between journalist and advocate, a tricky balance for which there are no written rules. How did he decide, for instance, that it would be "too cautious" for Obama to give legal status to 2 million people? "It is not what is expected from the community," he answered. "And we have got to say that."

Then what had he meant by comparing the southern border fence to the Berlin Wall? "The taboo issue of an open border should be tackled. Not now. Politically it is impossible even to discuss that," he said. "But I don't see why we can't have in North America the same immigration system that they have within the European Union." Was there a limit to how far a journalist should go in advocating for the interests of his audience? "The limit is, I am a registered independent. I would never say to whom I vote," he said. He also tried to separate his various roles. He never offers the same sort of raw opinions on the nightly news that he gives on his weekly Fusion show or in appearances with CNN's Anderson Cooper, another blue-eyed silver fox, who calls Ramos "my TV twin."

In September, Ramos keynoted a Hispanic Heritage Month event sponsored

Big Gets, Bigger Revelations



BARACK OBAMA, 2012
Had to repeatedly answer
for the failure to pass
immigration reform in 2009



MITT ROMNEY, 2012
Played defense when asked
about "self-deportation" of
undocumented immigrants



BILL O'REILLY, 2014
Defended himself when told
he was a "weak" interviewer
of George W. Bush



ENRIQUE PEÑA NIETO,
2009
Denied he was a millionaire,
saying, "I am not"



HUGO CHÁVEZ, 2000
Took Ramos to a remote
village and berated his
questions as "garbage"

by New Jersey Senator Robert Menendez, whose daughter Alicia is a Fusion anchor. I asked Ramos about the conflict of appearing at a Democratic political event, even if other Latino broadcasters like Telemundo's Jose Diaz-Balart had done the same. "In my case, I just give speeches," he said, noting that he would accept invitations from both parties and never accept compensation. "The most important thing is not to be partisan."

But what about politics? A few years back, Ramos began quietly speaking to friends about whether he should leave journalism to become a candidate for public office. "I really had no plan," he said. "I didn't know honestly if it was going to be here in the United States or Mexico." He holds dual citizenship, since naturalizing in the U.S. in 2008, and votes in both countries. In the end, he said, he concluded that he could accomplish more as a journalist than as a member of Congress, especially in the age of social media.

I tried to sharpen my point. Ramos' employer, Univision, is owned in part by Grupo Televisa, the Mexican media giant that has been accused, by U.S. diplomats among others, of playing a nontransparent role in supporting Peña Nieto's career with favorable news coverage. I asked whether he thought that was true. "What I can say is that Peña Nieto spent much more than all the other candidates," he responded. "And that millions of Mexicans question if he won fairly." He said the owners of Univision had never influenced his reporting.

Finally I asked, "What is the question that would break Jorge Ramos?" He smiled and asked for some time to think about it. About an hour later, he told me a story about being in line at a Publix supermarket in Miami. The couple in front of him were talking in Spanish about the latest rumor that Fidel Castro had died. The man turned to his partner and said, "Until Ramos says that, I won't believe it," unaware that the anchor could hear.

"What would break me is if people stopped trusting in me," Ramos then explained. "I have to admit that with the political positions I have been taking lately, obviously I am running the risk of losing credibility. But at the same time, that's our power."

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WORLD

BURMA'S BACKWARD STEPS

AS ITS POLITICAL REFORMS STALL, BURMA IS IN DANGER OF REGRESSING. IS DEMOCRACY ICON AUNG SAN SUU KYI FIGHTING BACK HARD ENOUGH? BY HANNAH BEECH/NAYPYIDAW



T'S ONE OF THE LARGEST PARLIAMENTARY complexes in the world, a legislature whose colossal size stands in inverse proportion to the actual work that occurs within its marbled halls. Each morning that it's in session, busloads of military brass, who are constitutionally guaranteed a quarter of the 664 seats, roll up to the complex, its 31 spired buildings representing each plane of Buddhist existence. Then come vehicles filled with civilian MPs, the men outfitted in the jaunty headgear—silk, feathers, the occasional animal pelt—that is mandatory for male MPs not in the military. Among the last to arrive is a private sedan carrying the country's most famous lawmaker, democracy heroine Aung San Suu Kyi, known in Burma simply as the Lady.

From 1988 to 2011, the military junta that ruled Burma, known officially as Myanmar, saw no need for a legislature. But after the generals introduced a road map for a “discipline-flourishing democracy,” the new parliament was built from scrubland in Naypyidaw, the surreal capital that was unveiled in 2005, complete with empty 20-lane avenues and multiple golf courses. Across the city from the assembly compound looms the Defense Services Museum, which sprawls over 603 acres (244 hectares). It is in the electoral district represented by Thura Shwe Mann, an ex-general who has refashioned himself as the Speaker of the lower house. Because Suu Kyi is constitutionally barred from becoming President in next year’s elections, Thura Shwe Mann could succeed President Thein Sein—another general turned civilian leader—if Thein Sein relinquishes power as promised.

For most of our defense-museum visit, photographer Adam Dean, a Burmese friend and I are the only visitors peering at exhibits glorifying the Tatmadaw, as the armed forces are called, a 350,000-strong fighting force that has battled colonial oppressors and ethnic insurgents alike. As we enter each vast hall, a guide turns on the lights, then extinguishes them as we exit. Electricity is expensive in Burma, and only after a group of cadets arrive is the lakelike fountain in front of the museum allowed to unleash its jets of

On the march MPs representing the military arrive for a parliamentary session in the capital, Naypyidaw

water. As we leave, the guide presses us for tips on the upkeep of the museum. "Any suggestions," he asks, "for the quality of the lighting?"

Two Burmas

SINCE SUU KYI WAS RELEASED FROM HOUSE arrest in 2010—the ruling generals locked up the Nobel Peace Prize laureate for 15 of the previous 21 years—Burma itself has been emerging from the dark. After nearly half a century of military rule, a quasi-civilian government has taken power. Suu Kyi and other members of her opposition National League for Democracy (NLD), which won the 1990 elections that the junta ignored, hold seats in parliament. In a world where democratic triumphs have become rare, Western leaders like U.S. President Barack Obama have lauded Thein Sein's reforms and lifted some economic sanctions that had been placed on the military regime because of its atrocious human-rights record: forced labor, political imprisonment and institutionalized rape by Burmese soldiers, among other abuses. Newspapers compete with one another for the latest scoop in a country where press freedom was nonexistent a few years ago. Foreign investors looking to tap Burma's bountiful natural resources have sent in scouts, and talismans of globalization like Coca-Cola are now available on local shelves.

But the caveats are many. For all the hype about a new frontier market, Western investors have remained cautious. In October, a Burmese journalist who once served as Suu Kyi's bodyguard died in military custody; his body showed signs of torture. Despite three years spent advertising an imminent national ceasefire, the Tatmadaw is still clashing with ethnic militias—like the Kachin, Shan and Ta'ang—who see little point in laying down their arms and submitting to a government dominated by a single ethnicity, the Bamar, or Burman. An extremist Buddhist movement has metastasized and is pushing for a law that discourages Buddhist women from marrying outside their faith. Violence against the Rohingya, a Muslim people living in western Burma, has been labeled "ethnic cleansing" by Human Rights Watch, the New York City-based watchdog, with hundreds killed and 140,000 sequestered in ghetto-like camps.

The halo around Suu Kyi, the nation's shining moral authority, has also dimmed. The transition from opposition

symbol to government insider is always perilous. Not that Suu Kyi is President, of course. She is constrained by a clause in the military-authored constitution that disallows anyone with a foreign family member from becoming President—a rule that seems specifically designed for her. (Suu Kyi's two sons, like her husband, who died of cancer when she was under house arrest, are British.) Even from her perch as parliamentarian, though, the 69-year-old holds the kind of global sway rivaled only by the Dalai Lama or Desmond Tutu. When she speaks, whether in her lofty Burmese or her crisp Oxbridge English, people listen.

Yet Suu Kyi has kept largely quiet about the plight of Burma's minorities, who together make up some 40% of the country's 50 million-plus people. Her silence is particularly jarring when it comes to the 1 million-strong Muslim Rohingya. Suu Kyi now rarely meets with the foreign press—she declined an interview with TIME—and avoids representatives from human-rights groups that spent years campaigning for her release. Some local activists are disenchanted. "Ever since independence, we Burmese have hoped for a hero to save us," says Phyoe Phyoe Aung, a 26-year-old civil-society activist who spent more than three years in jail. "I don't want to depend on one person, one leader, one Aung San Suu Kyi."

If next year's polls are free and fair, the NLD will likely prevail. But the party has done little to cultivate the next generation. Ye Htut, Burma's Information Minister, has perfected a line when it comes to the NLD. "If Suu Kyi is President, who will be the Vice President?" he asks during an hour-long conversation. "Who will be No. 2, No. 3, No. 4? Who are the other leaders in the NLD?" Ye Htut represents a government accused of backsliding on reforms—but he does have a point.

'WE HAVE HOPED FOR A HERO. [BUT] I DON'T WANT TO DEPEND ON ONE PERSON, ONE LEADER, ONE AUNG SAN SUU KYI.'

—PHYOE PHYOE AUNG, 26-YEAR-OLD CIVIL-SOCIETY ACTIVIST

The Absence of Peace

SUU KYI'S FATHER, AUNG SAN, IS CREDITED with having formed an independent Burma by joining often feuding ethnicities into a federal state. But Aung San was assassinated before the nation gained independence from the British in 1948. Since then, some of the world's longest-running civil wars have festered in Burma's fringes, where ethnic peoples live on resource-rich land. Today there is little love displayed for Aung San's daughter, a Bamar patrician, especially from those who practice faiths other than Burma's dominant Buddhism. "For the NLD, amending the constitution so [Suu Kyi can be President] is a bigger priority than peace," says Sai Hsam Phoon Hseng, an education and foreign-affairs officer for an ethnic Shan party. "But a big reason why this country is not developed is because of ethnic conflict. Peace should be the first priority."

There is little peace in the sliver of Kachin state run by the Kachin Independence Organization (KIO), which controls land near Burma's northern border with China. Since a cease-fire broke in 2011, after a 17-year pause in the fighting, more than 100,000 Kachin have been displaced with little hope of returning to land occupied by the Tatmadaw. Human-rights groups have documented rape and the deliberate shelling of civilian settlements by the Burmese army, though both sides have been accused of using child soldiers. About 8,000 Kachin villagers now live at Je Yang refugee camp. As dusk falls, Maran Kaw and her family gather in their tiny room to watch a DVD. It's a film of KIO propaganda, a disturbing depiction of sexual assault, execution and bloodletting by the Tatmadaw, complete with spurts of red paint and torn women's clothes. "I will get nightmares from watching this," she says, "because it reminds me of what happened in the villages." But her grandchildren, ages 1 and 5, are riveted.

It's a jarring scene, especially given the serenity that surrounds Suu Kyi, with her long-standing commitment to nonviolent resistance. But Burma remains a bloody place, and Suu Kyi's critics accuse her of resorting to phrases like "rule of law" rather than condemning the continuing ethnic brutality. Beyond Kachin, she has disappointed on the fate of the Rohingya killed in pogroms in western Burma. The ethnic Rakhine, or Arakanese—who have clashed with the Rohingya—dismiss



them as illegal immigrants from neighboring Bangladesh rather than recognizing them as an ethnicity with long roots in the region. Anti-Muslim sentiment simmers in Burma, as does resentment that the British brought people from the Indian subcontinent to work in their colony.

When Obama arrived in Burma in November for a regional summit, he was far less ebullient than during his landmark visit two years before, noting that the nation's reforms were by "no means complete or irreversible." At the same time, Suu Kyi has yet to speak out forcefully against a government plan to further disenfranchise the Muslim Rohingya. "It is the duty of the government to make all our people feel secure," Suu Kyi said on Nov. 14, when asked about the Rohingya with Obama at her side. "It is the duty of our people to learn to live in harmony with one another." The U.S. President was more direct: "Discrimination against the Rohingya or any other religious minority, I think, does not express the kind of country that Burma over the long term wants to be."

There's no question that in the Buddhist, Bamar heartland, Suu Kyi's popularity endures. Utter her name and it's like invoking a saint. But the Burmese are also beginning to criticize her openly. Even in her constituency of Kawhmu, deep in the Irrawaddy Delta, where land speculation has driven up prices threefold in one

month, there is pushback. A self-styled real estate agent strides up, intent on selling a patch of rice paddy and banana trees for a ridiculous price in a community of wooden shacks. Mention that Suu Kyi had recently cautioned farmers against selling their land, and he shrugs. "Money is good," he says. "She's rich, anyway."

She's not, really. Suu Kyi lives in villas but hardly surrounds herself with the gilded excess of Burma's military elite and their cronies. The choices she faces are difficult. Once confined by house arrest—and a cloistered life of academia and motherhood before that—Suu Kyi may still be unaccustomed to the hurly-burly of politics. It's easy to criticize her for failing to defend ethnic groups, but casual racism, particularly toward the Rohingya, is so ingrained in Burmese society that she would surely lose more supporters than she would gain by defending minority rights.

Still, the world is counting on Suu Kyi to use her moral suasion to fight prejudice, no matter the political consequences. But she may feel that the NLD needs to win an election before she can instill values in her people. Meanwhile, others speak up for her. One unlikely defense comes from Wai Wai Nu, a young Rohingya activist who, like her entire family, spent time in jail. "Of course, we are disappointed in Aung San Suu Kyi's silence about us," she says. "But we have no choice but to support her democratic party. What other hope do we have?"

Struggling hero Suu Kyi leaves a June 21 political rally in Yay Tar Shay township, where she campaigned against tightening control by the country's military

Back to the Future

CLOSE TO MIDNIGHT, THE STREETS OF downtown Rangoon are hushed, save for the scuffle of bare feet on cooling pavement. Young men are playing soccer on what during the day is a busy thoroughfare. Looming around them in this interfaith city, Burma's biggest, are a Buddhist pagoda, a Baptist church and a Sunni mosque built by Indians who arrived during the British Raj. Around the corner from the soccer game is Sule Pagoda Road. It was on this avenue in 2007 that Buddhist monks upturned their begging bowls in a sign of defiance and marched for democracy. The columns of burgundy-robed holy men made for memorable images. So did the ensuing slaughter. Dozens, at least, were killed.

Today a billboard for a new mobile-service provider stands near the spot where a Japanese news photographer was gunned down by a Burmese soldier seven years ago. It's a sign of Burma's growing ties with the outside world. For all the frustration with Burma's seeming regression, what was formerly one of the most closed countries in the world, run by a vicious military junta, has opened in ways that Burmese just a few years ago never could have dreamed. Suu Kyi, who remained a symbol of hope through those years of repression, deserves thanks for that.

How much has changed becomes clear when a man emerges from the dark. He is wearing a sarong and introduces himself as Mr. Toe. "Do you know what happened here a few years ago?" Mr. Toe asks in meticulous English. "Do you know who the Lady is?" A few years ago I would have taken him for an undercover agent, dispatched to lure sedition out of foreigners. Now it's different. So we sit at a roadside stall, picking at tea-leaf salad and going over the army massacres of 1988, when even more civilians died, and the one nearly two decades later. He remembers the crowds of 2007, then the fierce syncopation of machine guns and the streets empty of everything but flip-flops orphaned by those who fled. "Oh my Buddha," Mr. Toe exclaims, and we toast Suu Kyi with water, Coca-Cola and Burmese High Class whiskey. Burma's true dawn may still be distant, but on this night, who can we honor but the Lady? ■

JOSE (A
PSEUDONYM)
BEGAN TREATMENT
WITHIN 24
HOURS OF BEING
DIAGNOSED
WITH HIV



HEALTH



SAN FRANCISCO'S FIRST AIDS MARCH, IN 1983

SAN FRANCISCO WAS GROUND ZERO FOR HIV IN THE U.S.

THE END

NOW IT WANTS TO BE THE FIRST CITY IN THE WORLD
WITH NO NEW INFECTIONS, NO STIGMA—

OF AIDS

AND NO DEATHS. BY ALICE PARK

WHEN PATRICK, A GAY MAN WHO

worked on-again, off-again as a bartender in San Francisco, developed a fever, muscle aches, and a rash that spread from his chest to his neck, he expected the worst. He hadn't been as careful as he should have been with a recent sexual partner, and he'd seen enough people get diagnosed with the virus that has ravaged his community for decades. In the summer of 2013, he went to the San Francisco City Clinic for a free HIV test. He filled out paperwork requesting five different contact numbers—his own and those of close friends or family members. Then the nurse drew blood.

What happened next did not follow the normal trajectory of any medical diagnosis, much less HIV. Patrick, 35, was between jobs at the time, without a working phone, and was crashing on an ex-boyfriend's couch when he finally logged on to a friend's computer several days later to check his email. That's when he found urgent messages from the clinic asking him to call. He also learned that doctors had been trying to track him down through his contacts, including a former lover. "They were really aggressive about finding me, which was a little off-putting," Patrick recalls.

Patrick didn't know it then, but he was the first patient in a groundbreaking program called RAPID (Rapid Antiretroviral Program Initiative for new Diagnoses), a public-health strategy launched in 2013 by the University of California, San Francisco (UCSF), San Francisco General Hospital (SFGH) and the city's public-health department, with support from local pharmacies and activists. It's a comprehensive plan meant to erase the financial and social barriers to getting tested and treated for HIV.

RAPID impels people who don't know their HIV status to get tested and tracks down those who are positive before shuttling them from HIV testing centers, which can't dispense drugs, to hospitals, which can. After that, there are follow-ups to make sure that the patients stay on their meds—and that the drugs are working.

The reason for the urgency is simple: the more HIV-positive people who know their status, the more people who can start treatment. And HIV-positive people who take their medications can bring their virus levels down to undetectable levels—a potential lifesaver for them that also leads to less virus circulating that can spread from one person to another. That, say experts, could be the key to finally putting out the fire that has claimed 36 million lives since the 1980s and continues to smolder on nearly every continent, affecting 35 million more.

RAPID lives up to its acronym. "They told me my test was positive and wanted to put me in a cab to San Francisco General Hospital that day," says Patrick. Before he even arrived, Dr. Hiroyu Hatano, an HIV expert at UCSF and SFGH, received a page that Patrick was on his way. That's RAPID at work too: ensuring that patients are paired with a permanent physician who sees them at every visit. That doctor talks to them about starting lifesaving antiretroviral (ARV) drugs—immediately—using federal and state AIDS funding to subsidize drugs for low-income and uninsured people.

Hatano is part of a new generation of HIV experts who are operating with the benefit of more than 30 years of trial and tragedy at their disposal. For years after AIDS was first identified in 1984, patients survived an average of only 18 months and—because there were no treatments—could be given only palliative care. Now doctors are much more aggressive with the virus.

While ARVs have been around since 1987 and doctors have been using them in powerful cocktails since 1996, Hatano and Dr. Diane Havlir, chief of the HIV/AIDS division at SFGH, were compelled by more recent studies that revealed that the sooner people start taking them, the healthier they would be. Someone who begins treatment as soon as possible after infection can protect his immune system from being ravaged.

And that makes RAPID something of a



revolutionary program, because the treat-first approach, which SFGH began offering to patients in 2009, went against what the Centers for Disease Control and Prevention (CDC) advised physicians to do at the time. Its guidelines recommended waiting to start drug therapy until immune-cell counts dropped below a certain level—a sign that the body was beginning to lose the fight against HIV.

But Havlir and Hatano's research showed that intervening before that happened could prevent the virus from



establishing beachheads in the body—dreaded reservoirs that no medication, no matter how powerful, could reach.

So when Hatano and Patrick met for the first time, Patrick recalled, “she put three pills in front of me and said, ‘We want you to start them. Like, today, right now.’” He swallowed the pills while she watched.

Since Patrick downed those pills, 50 people have followed him in the program. It’s now the cornerstone of San Francisco’s strategy to be the first city to “get to zero”—zero new HIV infections, zero deaths from

WE HAVE THE
OPPORTUNITY
TO BE THE FIRST
CITY TO END HIV
TRANSMISSION.'

—NEIL GIULIANO, CEO,
SAN FRANCISCO AIDS FOUNDATION

HIV TODAY Dr. Diane Havlir, far left, with HIV-positive patient Steve Ibarra and nurse Diane Jones

HIV/AIDS and zero stigma. “They say AIDS started here, and we want to start the end of the epidemic here too,” says Havlir.

She has the support of city supervisor Scott Wiener, who hopes this campaign will, as he says, put the “final nail in HIV’s coffin in San Francisco.” It’s a journey, city officials and HIV experts hope, that will finally mean meeting the epidemic head-on by aggressively employing what has proved to work in stopping HIV from spreading.

“I don’t think it’s outrageous or unrealistic to say we have the opportunity to be the first city to end HIV transmission,” says Neil Giuliano, CEO of the San Francisco AIDS Foundation (SFAF), a nonprofit advocacy group. “When we do that, we have a clear piece of pavement that we have to go on to get to the end of AIDS.”

It will take more than a few committed doctors and gumshoe HIV-testing counselors. It will require the right public-health policies that encourage universal testing, support from lawmakers who mandate coverage of not only HIV testing but treatment services as well and a community willing to embrace the idea. San Francisco is uniquely positioned to make it happen.

From Epicenter to AIDS-Free

WITHIN A FEW YEARS OF THE FIRST AIDS cases’ being reported in the U.S. in 1981, San Francisco became the hub of the country’s epidemic, peaking at more than 5,000 cases per year in the 1980s. The local health department opened the country’s first HIV clinic and first inpatient AIDS ward, both at SFGH, which quickly filled its several dozen beds. But with no treatments and only a basic understanding of the virus, the ward became a hospice where AIDS patients went to die.

More than three decades later, the disease has killed over 650,000 Americans, and the HIV/AIDS landscape, thankfully, has changed. At its peak, there were 50,000 deaths from the virus per year; now the number is 15,000. Lately, the rate of new HIV infections has stabilized at about 50,000 annually, and more than 1 million people in the U.S. are now living with an HIV diagnosis.

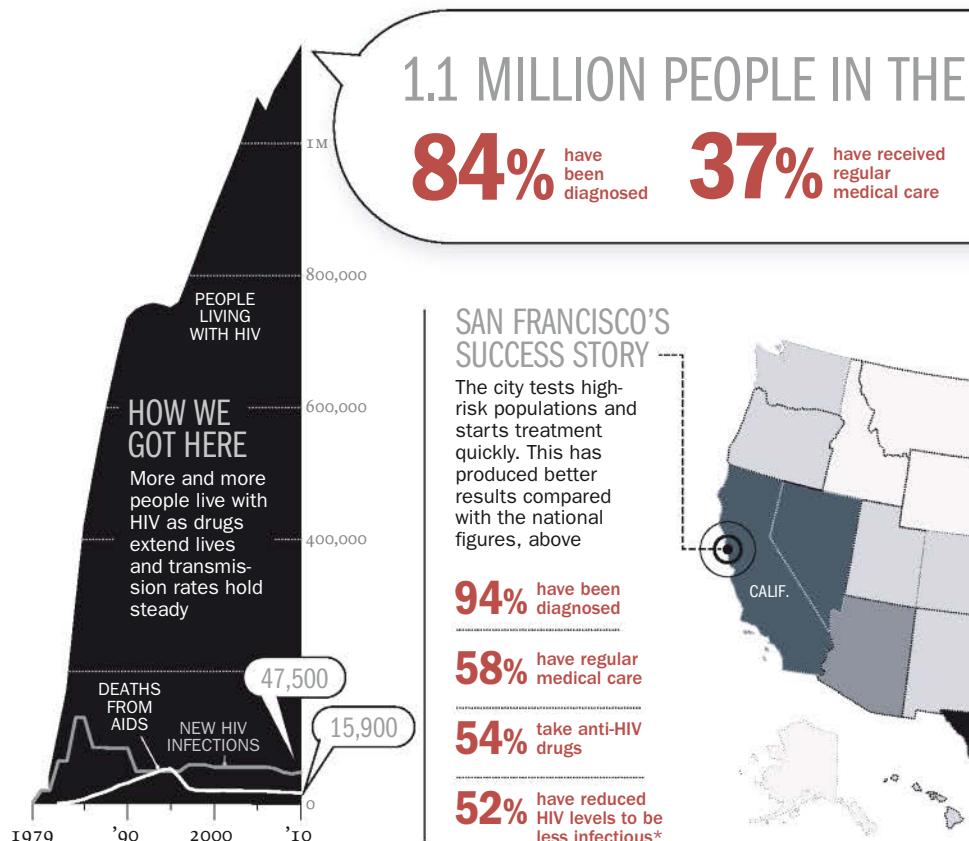
Those trends are making it possible for public-health experts to shift the conversation toward reducing, and even eliminating, HIV infections. More people are living with the virus—successfully controlling it with medication—and far fewer have the immune-system crashes, cancers and infections that can come with full-blown AIDS.

And the face of HIV today is a world away from the gaunt faces and wasted spirits brought to life in Tony Kushner's *Angels in America* and by Tom Hanks in *Philadelphia*. The reality is that it's now possible to live, for nearly an average lifetime, without any obvious physical evidence of an HIV infection.

As welcome as that about-face is, though, it comes with a price. Flattening rates of new infections and the existence of powerful drugs have nurtured complacency about HIV/AIDS, creating a sense that the worst is over. That's reflected in shrinking commitments to global funding for AIDS, including from the U.S., as well as stubbornly low rates of treatment. While rates of new infections are declining worldwide, only 37% of the global HIV-positive are taking lifesaving drugs. And there is a worry about rising rates among women.

So the fact that some experts are talking about ending the epidemic—with fewer resources, without a vaccine and without a cure—strikes others in the field as premature. "The things that will create an AIDS-free generation are things we don't have yet—a cure and a vaccine," says Dr. Warner Greene, director of virology and immunology at the Gladstone Institutes in San Francisco. "But the [get-to-zero] effort will reinvigorate the field. It's a rallying cry that I think serves a great purpose."

That purpose, argue leading voices in the Bay Area, is to ensure that we don't sit by and do nothing while waiting for a vaccine or cure. Programs like RAPID—and the recent discovery that some ARVs can be used to prevent infections in healthy people—offer a road map that goes beyond safe-sex messaging, free condoms and needle exchanges. "We know how to end the epidemic. We just have to put things together in a way that engages people, makes the services available when and where they are needed," says Dr. Robert Grant of UCSF. "It becomes a practical challenge."



WE KNOW HOW
TO END THE
EPIDEMIC ...
IT BECOMES
A PRACTICAL
CHALLENGE.'

—DR. ROBERT GRANT, PROFESSOR OF MEDICINE, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

A Voluntary Breakthrough

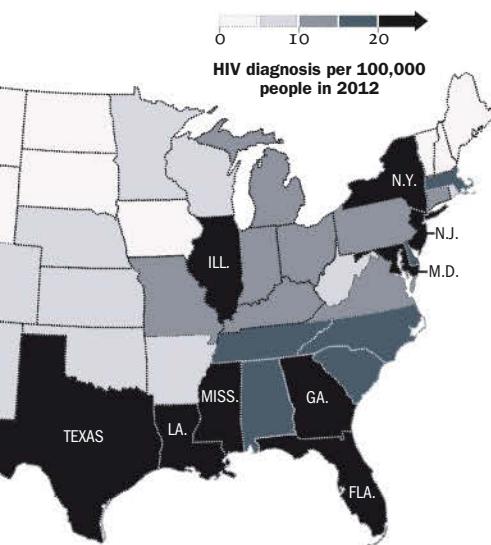
SAN FRANCISCO HAS BEEN CONFRONTING this challenge for several years, ramping up its efforts in the past 12 months, and so far that's been paying dividends. Since 2010 the percentage of HIV-positive people in the city who are taking ARVs and have undetectable levels of HIV in their blood—which means they are unlikely to pass on the virus—has increased, from 56% to 68% in 2012. Nationally, only 25% to 28% of patients fall in this category. And because San Francisco patients are starting on their ARVs sooner, they are suppressing the virus more quickly. In 2004 it took the average patient nearly three years of daily pill popping to reach undetectable virus levels; in 2013 it took about three months.

Much of the recent progress began as the AIDS epidemic did, in an area southwest of downtown called the Castro, a hub for gay men, who still make up 80% of the city's new HIV cases. And a central

U.S. LIVE WITH HIV, BUT ONLY

33% take anti-HIV drugs

25% have reduced HIV levels to be less infectious



*Figure is based on those receiving regular care. Sources: CDC; San Francisco Department of Public Health; AIDS.gov

spot in the Castro—for HIV screening and, increasingly, for a number of other things too—is a place called Magnet.

Magnet occupies an old theater in the heart of the neighborhood. Its vintage marquee advertises art shows, but the space is best known for its free HIV services. Even before it opened in 2003, Magnet attracted both controversy and curiosity; its glass storefront—where drop-ins can be seen by anyone walking by—was a first for an HIV clinic. It has morphed over time from being a place to get a free HIV test into an art gallery, a dance studio and an open-mike venue, and every Wednesday it doubles as an acupuncture office.

"It doesn't seem taboo at all to be here," says Chris Thurman as he signs in for his regular HIV test. The \$12 tests are free for anyone who requests one, thanks to the city's health department, which subsidizes them. (SFAF contributes to operational expenses.) Magnet sees about 60 to 80 people

a day and performs about 9,000 HIV tests annually, nearly half the city's tally. On a typical morning, more than a dozen people are lined up waiting for the center to open.

It wasn't always this way. In the 1990s and 2000s, an estimated 20% of those who were HIV-positive in the city never made an appointment to get tested, and 25% who tested positive never came in to get their results. Laws requiring written consent for the test, counseling and a weeklong "contemplation" period all stood between a simple blood test and a person's finding out his or her HIV status.

That was particularly frustrating for Dr. Jeffrey Klausner, then the deputy health officer with the San Francisco department of public health, who knew that drug cocktails could save these patients' lives. So he asked his counselors to gingerly query patients about whether doctors could follow up with them if they tested positive but didn't return for their results.

DEMOGRAPHICS

76%
MALE

44%
BLACK

33%
WHITE
24%
FEMALE
19%
HISPANIC

TRANSMISSION

53%
MALE-TO-MALE SEX

27%
MALE-TO-FEMALE SEX
15%
INJECTION DRUG USE

Most said yes, and in 2006 the city was the first to drop the pretest-counseling requirement and allow people to provide oral consent for the test. Rates of new HIV diagnoses fell from nearly 500 in 2008 to 359 in 2013. Today 94% of HIV-positive people in the city are aware of their status, compared with 84% nationwide.

Four months after San Francisco made these changes, the CDC followed. That's when the agency issued guidelines that voluntary HIV testing be made available to all adults in the U.S.—minus the pretest counseling or written requirements.

No New Infections

PEOPLE KNOWING THEIR HIV STATUS IS JUST one step in getting to zero. In the past decade, potent drugs have transformed HIV from a nearly always fatal infection to a chronic one resembling diabetes: it requires medical management, but those with the disease can live a relatively healthy life. The drugs that help keep HIV-infected people healthy also turn out to be a potent form of prevention. San Francisco is taking full advantage of the opportunity.

Called by the unwieldy name pre-exposure prophylaxis, it's better known as PrEP. Studies spearheaded by Grant show that among gay men, those who don't have HIV can lower their risk of getting it by over 90% if they take Truvada for at least a few days before and after exposure to the virus. The idea is to flood the body with the drug, which interferes with HIV's ability to copy itself and spread. Ongoing studies are investigating the optimal dosing regimens.

It's such a potentially powerful tool for reducing new HIV infections that San Francisco's board of supervisors recently voted 10-0 to provide PrEP to all at-risk residents who requested it, regardless of their ability to pay. Detractors, however, argue that supplying preventive drugs to the otherwise healthy would give people a license to live dangerously and undo the advances that safe-sex campaigns have made.

But early studies of gay men who were given PrEP if they asked for it showed no evidence that those users became more promiscuous. And those taking the once-a-day pill for three months were less likely to have multiple sexual partners than those who weren't.

For many in the city, particularly those

with an HIV-positive partner, PrEP is a potential lifesaver. "It's like a wonder drug," says Andrew Giddens, a local sous-chef who asked about PrEP during his routine HIV test at Magnet in August after starting a relationship with someone who has HIV. "How come every single person in the gay community doesn't know about this?"

But better information and stronger drugs are just the first steps in what experts call the treatment cascade. Once patients are diagnosed, they need to find a doctor who can treat them with ARVs. Then they need to take those drugs every day for the rest of their life.

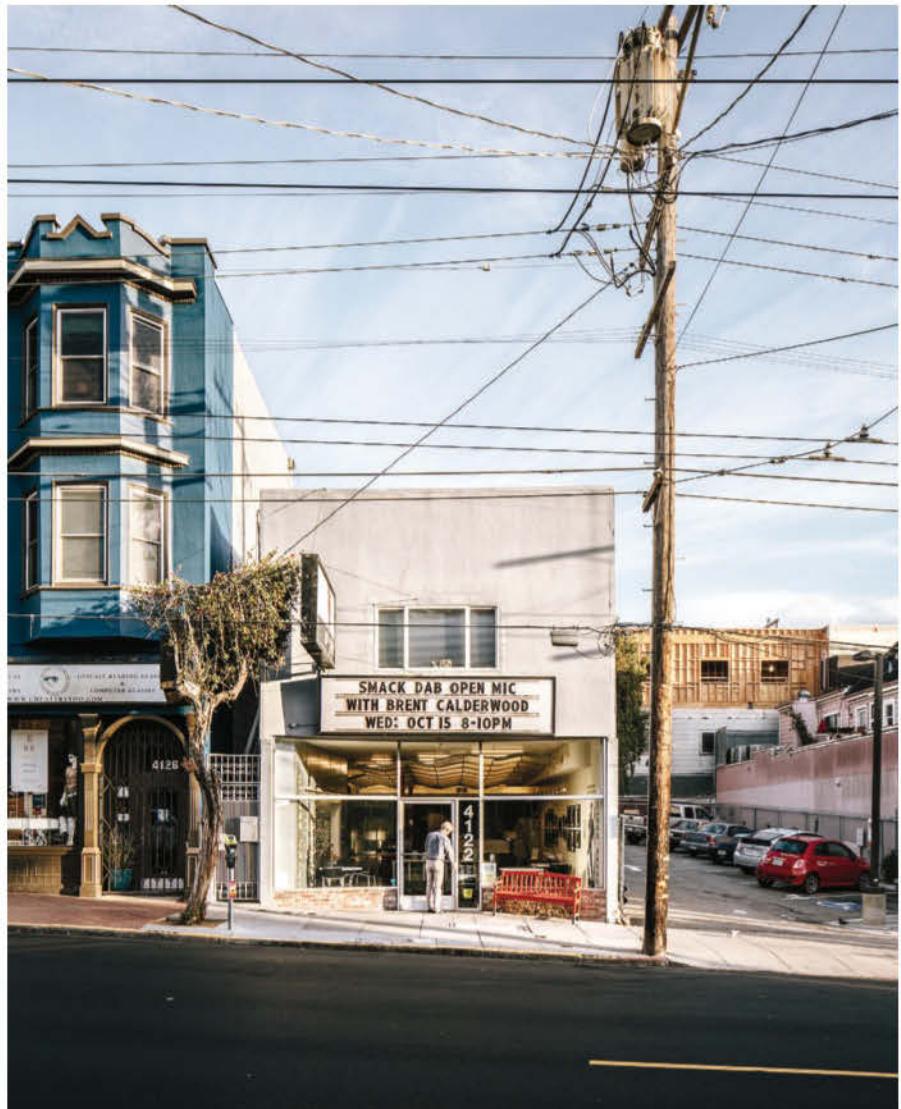
That's why RAPID employs full-time social workers who meet the patients to work out any obstacles that might prevent them from keeping their appointments. Those include psychological issues, such as depression or denial, and substance abuse. It's also their job to make sure cost doesn't prevent people from filling their prescriptions after their five-day starter pack runs out. For patients like Jose, an unemployed retail manager who was brought to RAPID the day after he was diagnosed in May, figuring out how to pay for the drugs was a top concern. "What was going through my head wasn't my health," he says, "or that I was going to die, but would I have to use everything I worked for in order to save myself from this disease?"

In three days, his social worker had enrolled Jose in the AIDS Drug Assistance Program, with federal and state funds covering the \$3,000-a-month meds. Jose, like Patrick, chose to use a pseudonym: his parents and five siblings don't know about his diagnosis. And for now, they might not have to. Three months after he started taking ARVs, his virus was undetectable.

Ending the Stigma

EVERY EPIDEMIC, HOWEVER DEVASTATING, has a beginning and an end. The Black Death that swept from China to Europe in the 1300s peaked over five years. The influenza epidemic of 1918 ripped through nearly every country on the planet, leaving an estimated 50 million dead in its wake. But nearly as quickly as it came, it disappeared after about 12 months.

However dark the circumstances seem at the start, history teaches us that eventually there is an end. And a critical feature



**ZERO INFECTIONS
IS 'A LAUDABLE
GOAL,' BUT THE
RHETORIC IS A
DISSERVICE TO
PREVENTION.**

—PAUL HARKIN, HIV COUNSELOR,
GLIDE, SAN FRANCISCO

of that denouement is often eliminating the stigma of a disease—and then applying solid science, when it's available.

Achieving that goal may be the most challenging chapter in the story of the end of AIDS, even in a city as liberal as San Francisco. "We will not reach the goal of zero new infections if we don't stop stigma and discrimination," says Françoise Barré-Sinoussi, a co-winner of the Nobel Prize for her work in discovering HIV. That won't happen overnight. But just as Magnet set a new standard by making HIV services as commonplace as any other health

TO BE CLEAR *The glass storefront of the Magnet clinic in San Francisco's Castro district; the center does half the city's HIV tests*

screening, San Francisco is reorienting itself toward a new view of HIV—and other cities in the U.S. and abroad may follow its lead. Certainly, San Francisco's experimentation is having an impact elsewhere. In 2012 the CDC changed its guidelines and now recommends ARVs for anyone diagnosed with HIV, regardless of their immune-cell count.

Next year Magnet will reopen in a glitzy health-and-wellness center in the Castro, for which it is raising \$10 million from private donors. It will be a one-stop shop for drug, mental-health and HIV support. The center will significantly expand the number of people the city serves.

The new Magnet will be part of proving that RAPID can work—and be scaled outside the Castro. "I haven't seen anywhere close to zero infections in the community I work in," says counselor Paul Harkin, who heads HIV services at Glide, a center in the more hardscrabble Tenderloin neighborhood. "I think it's a laudable goal, but I think the rhetoric should get toned down, because it's a disservice to the whole idea of prevention." At his clinic, men don't come in for testing as they do at Magnet. Volunteers have to make the rounds in the neighborhood to get people to visit the center.

Even so, notes Giuliano, that doesn't negate the opportunity RAPID has created. "I contend that when we show we can do this even in one community impacted by HIV, then it is proof of concept for work that needs to be done in other groups," he says.

When Patrick moved to New York City, Hatano gave him a list of doctors and counselors there who signed him up for benefits so he wouldn't stop taking his daily ARVs. "Knowing I would be able to continue my care after I moved was huge," he says. "The whole experience has been like a warm gentle hug since that first day."

More than three decades ago, HIV began patient by patient. Now San Francisco hopes to march toward the beginning of the end of AIDS. "I'm 57, and I saw a lot of friends die," says Giuliano. "Those of us who lived through that, we're not going to just accept people being able to live well. We want to end HIV and AIDS." ■

VIEWPOINT

AN AMERICAN MIRACLE

HOW THE U.S. FOUGHT AIDS BY THINKING BIG AND STAYING SMART

BY MICHAEL ELLIOTT



Elliott, a former editor of TIME International, is the president and chief executive officer of ONE, an international advocacy group co-founded by Bono

AT MY HOME IN WASHINGTON, D.C., PLACED SO THAT I SEE IT every morning, is a photograph of Princess Adeyeo, a young Liberian woman I met in 2012. Princess had been a refugee during Liberia's civil war; when she returned there, she found that she was HIV-positive. But in Monrovia's John F. Kennedy Hospital she was put on a course of antiretroviral drugs (ARVs), which prevent mother-to-child transmission of the virus, and a few months before our visit she gave birth to a beautiful baby boy. He was HIV-negative, healthy.

Right now, of course, people associate Liberia with Ebola. It's right that we get mad about Ebola—mad that the world waited so long to tackle the outbreak; mad that poor, vulnerable societies don't have the resources needed to tackle infectious diseases. But we should remember too that in the past few years, Liberia—in fact, every country, rich or poor—has seen small miracles like the story of Princess and her son, and sees more of them each year.

In 2003, across all of sub-Saharan Africa, just 50,000 people were on ARVs; now more than 9 million are. There is no reason, in the next few years, that we cannot virtually end mother-to-child transmission of HIV in even the most challenging environments. Unheralded, we just passed a tipping point: in 2013, more people were added to the rolls of those on lifesaving treatment for HIV/AIDS than the number who were newly infected. That crossover of trend lines should mark the beginning of the end of AIDS.

Say those last seven words out loud and wonder at them. How did we get to a position that, had it been suggested not long ago, would have been thought impossible? Because of brave, stubborn activists; brilliant scientists and their generous funders; dedicated doctors and nurses; patients who fought for a chance to live; and officials and politicians of all political stripes and none who devised programs that gave those patients hope. And just to be clear, those countless heroes and heroines came from all over the world.

BUT WHEN, AT THE NATIONAL INSTITUTES OF HEALTH IN 2011, Hillary Clinton, then U.S. Secretary of State, said, "In the story of this fight, America's name comes up time and time again ..."

No institution in the world has done more than the United States government," she was speaking not hyperbole but truth.

For here is what seems like a secret but shouldn't be: in the past decade, Americans and their Presidents have done a great thing. From 2004 to 2013, the U.S. committed more than \$50 billion to the global fight against AIDS, and last year accounted for some two-thirds of all international assistance to that effort. (About half the money to combat AIDS in the developing world now comes from the budgets of countries there.) Programs funded by American taxpayers have saved more than 7 million lives overseas.

Here's another thing that would surprise Americans if they knew about it: in a Washington that has become a byword for dysfunction, the war on AIDS has been a model of comity. There have been political disagreements to be sure, but thanks to the work of two Administrations of different hues and countless congressional heroes from both sides of the aisle, support for the international fight against AIDS has remained solidly bipartisan.

How come? At the heart of this story are two simple and rather old-fashioned ideas. Think big, and stay with what works. For the first insight, credit the Administration of George W. Bush. The 43rd President had come into office interested in Africa's untapped potential, and in the summer of 2001 he pledged \$200 million to the new Global Fund to Fight AIDS, Tuberculosis and Malaria. A year later, he committed \$500 million to fight mother-to-child transmission of HIV. The next day, he called Josh Bolten, then his deputy chief of staff, into the Oval Office and told him, "Think even bigger."

Twelve years on, Bolten still muses on the various elements—strategic, managerial, religious—that made Bush so relentless in his determination to do something about AIDS. Bush plainly felt that the U.S., with all its blessings, had a duty to others less fortunate. Bolten remembers—as does Michael Gerson, then Bush's chief speechwriter—the President's frequent quotation from Luke's Gospel that "to whom much is given, much is required."

But for whatever reason, Bush thought big, and his team—Bolten; Gerson; Tony Fauci, the veteran AIDS researcher at the National Institutes of Health; and others—delivered. In his State of the Union message in January 2003, Bush announced a truly astonishing

\$15 billion commitment to tackle AIDS in Africa, in what became PEPFAR, the President's Emergency Plan for AIDS Relief, which remains the largest program devoted to combatting a single disease that any nation has ever launched.

THE SPEECH AND THE PLEDGE WERE THE DRAMA. BUT IT IS perhaps what has happened since—the quotidian business of sticking with what works—that has been most inspiring about the U.S. effort on AIDS. On World AIDS Day in 2011, President

Barack Obama paid tribute to Bush and PEPFAR and said he was "proud that we have the opportunity to carry that work forward." That the President did—working again with a bipartisan coalition on the Hill—and then some. At a time of fiscal austerity that extended to every element of the federal budget, the amount the U.S. committed to PEPFAR and the Global Fund grew from \$5.8 billion in fiscal year 2008 to \$6.3 billion in 2013.

PEPFAR has evolved to follow where the science leads us. We now know, for example, that antiretroviral treatment and voluntary male circumcision can serve as prevention tools,

reducing the risk of passing HIV on to others. So the program has scaled up its efforts in those areas while also targeting its resources to the regions of greatest need. But what Obama said in 2011 remains true: "The fight against this disease has united us across parties and across Presidents."

Long may it do so. Sustained American leadership remains vital. But wherever the funding comes from, there will still be challenges. Already, the disease is concentrated among vulnerable populations, some of them hard to reach and treat for reasons of social stigma or isolation, including men who have sex with men, injection-drug users, female sex workers, adolescent girls and the disabled. Other developed nations need to step up and join the U.S. in its commitment, and national governments in the developing world need to keep their promises to spend more on health.

But given what has been done in the past few years, it would be churlish to assume the worst. In the past decade, in HIV/AIDS policy, science and treatment, the world has seen miracles: big ones, involving millions of people on life-saving drugs, and small ones, like a mother with the disease giving birth to a healthy child.

Most miracles are a mystery. These aren't. Thank you, America.



BREAKTHROUGH George W. Bush pledged to commit an unprecedented \$15 billion to fight AIDS in Africa during his 2003 State of the Union address

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Somewhere in America, Siemens is building answers that will make a difference in our lives.

No exit Candy and Al DeWitt felt they had no way to care for their son, a former high school football player who has schizophrenia

Photographs by Mike Kepka





NATION

Dangerous Cases

Laws designed to compel those with serious mental illness into treatment are gaining traction

BY HALEY SWEETLAND EDWARDS

IT WAS TOWARD THE END OF HIS SENIOR year in high school that Daniel DeWitt, a handsome, college-bound football player, began to slip into a world of paranoia, evil spirits and voices in his head. By the fall of 2007, a few months after his graduation, he was diagnosed with schizophrenia. "The worst part," says Daniel's mother Candy DeWitt, "was watching him suffer and having no way to help."

Because Daniel was a legal adult, Candy and her husband Al couldn't just make him take his medicine. But like many people with a serious mental illness, Daniel refused to seek treatment on his own. That left the DeWitts with little choice but to care for him as best they could as he deteriorated. Every so often, he would get sick enough to qualify under the law in Alameda County, California, as an imminent danger to himself or others, at which point he could be admitted, involuntarily, to a psychiatric hospital where he would be stabilized.

Daniel was hospitalized in that way at least nine times over the course of four years but was almost always released after two or three days. "He'd dump his medication at the door, and the process would start all over again," Candy says.

The last time Daniel was hospitalized, in December 2011, he wasn't doing well. Even his doctor thought he should continue inpatient care, but since Daniel no longer met the legal criteria for involuntary treatment and refused to stay voluntarily, he was released. Two months later, in February 2012, having yet again declined into what's known as a floridly psychotic condition, Daniel wandered into a leafy neighborhood in Berkeley, Calif. There he encountered Peter Cukor, a 67-year-old retiree, and allegedly beat him to death with a flowerpot, according to police reports. Daniel was charged with murder, found incompetent to stand trial and sent to Napa State Hospital, a psychiatric institution, where he remains today.

Daniel's story has become a tragic touchstone for the ongoing national debate about mental illness and violence. Fairly or not, it is often listed as yet another in a string of crimes in the years before and after Cukor's death, in which other young men with serious mental illnesses killed dozens in Tucson, Ariz.; Aurora, Colo.; and Newtown, Conn. This year, in May, a



young man suffering from mental illness stabbed and shot six in Isla Vista, Calif.

These events are rare; only a tiny percentage of violent acts in the U.S. can be attributed to mental illness, and most don't involve guns. But every time one of these tragedies occurs, a version of the same public debate ensues. Many call for new gun-control laws to keep weapons out of the hands of unstable individuals. In September, in response to the Isla Vista tragedy, California Governor Jerry Brown signed a law that makes it easier to confiscate a gun from an individual deemed potentially dangerous.

But after Congress failed to pass comprehensive gun-control legislation in the wake of the Newtown shooting in 2012, national attention shifted toward reforming the mental-health system. A Gallup poll last September that asked about the cause of mass shootings found that more Americans blamed the mental-health system for failing to identify dangerous individuals than the availability of guns. At the heart of this new debate is a single idea: Should it be easier to compel adults with a serious mental illness, like Daniel, to receive involuntary psychiatric treatment?

Legal remedy Parent Candy DeWitt favors laws that allow court-ordered psychiatric treatment

It is a hugely controversial question—one that casts doubt on the validity of our country's 50-year-old policy of deinstitutionalization. And disagreements over the answer have catalyzed a civil war in the mental-health community. On one side, there are those who argue that involuntary treatment will do nothing more than destroy patients' civil rights, discourage them from voluntarily seeking help and further stigmatize mental illness. They say linking crime to mental illness is an unhelpful distraction: people with a mental illness, taken as a whole, are no more likely to be violent than anyone else, and a history of substance abuse is a much better predictor of who will pull a trigger next.

On the other side, a growing coalition of grassroots activists, led by parents like Candy DeWitt, say society has a moral obligation to help people receive treatment. They argue that ignoring higher correlations between violence and the tiny fraction of Americans—less than



At Risk

There are 9.6 million adults with a **serious mental illness** living in the U.S., but fewer than ...

150,000
psychiatric beds available for them

THE EFFECTS

People with a serious mental illness make up about **4%** of the U.S.'s adult population but account for ...

15%
of state prisoners

24%
of jail inmates

30%
of people who are chronically homeless have a mental-health condition

THE COST

\$ 317 BILLION

Estimated **annual cost to society** of caring for the seriously mentally ill (a third comes from medical expenses, while the rest comes from disability payments and lost productivity)

Sources: NIMH; Substance Abuse and Mental Health Services Administration; Department of Justice; NIMH Director Thomas Insel, in a 2008 *Psychiatry* article

hospital, became a rallying cry: beware the dark ages of institutionalization.

A half-century later, health care workers, law-enforcement officials and parents of mentally ill adults say this reaction was too extreme. "It's easy to see why the pendulum swung in that direction in the '60s—it was a righteous impulse," says Randall Hagar, an advocate for the National Alliance on Mental Illness in California. But it didn't take into account the unintended consequences of mass deinstitutionalization. "What we're seeing now is a course correction," he says.

Hundreds of thousands of people with a serious mental illness today end up homeless, cycling through emergency rooms, short-term hospital stays, jails and prisons. Most land in the correctional system for the first time after committing a petty crime, like urinating in public, but then quickly become repeat offenders, racking up felonies for reacting aggressively to police officers or fighting with other inmates, says Michael Biasotti, a past president of the New York State Association of Chiefs of Police. Biasotti says he understands how complicated the issue can be since he has a daughter who suffers from schizophrenia.

Although people with serious mental illness make up only about 4% of the U.S. population, they account for 15% of state prisoners and 24% of jail inmates, according to government records. Three times as many people with a mental illness are incarcerated as are in psychiatric hospitals, according to a 2010 report co-authored by the National Sheriffs' Association. People with a serious mental illness are also nearly 12 times as likely as the average person to be the victim of a violent crime, like rape, and as much as eight times as likely to commit suicide. People with symptoms of mental illness account for as much as 30% of the chronically homeless population.

Teresa Pasquini, who co-founded Right2Treatment, an advocacy group in California, calls this a "moral catastrophe." Civil rights advocates were correct in the 1960s to demand respect for patients' rights, she says, but their definition of *rights* was too narrow. "Leaving people to sleep on sidewalks and freeze and spend their lives in jail isn't respecting their rights either," she says.

Moral costs aside, allowing people with serious mental illnesses to bounce among

2%—who don't receive treatment for a serious psychiatric disorder does more to stigmatize mental illness than addressing it head-on.

Whichever side prevails in this battle, unfolding today in county seats, state legislatures and Congress, will shape the publicly funded mental-health system for decades. "We're asking, Do we help the sickest of the sick?" says Marc Fishman, a psychiatrist at the Johns Hopkins Bayview Medical Center and the University of Maryland Medical Center. "If the answer is yes, then how do we do it?"

A New "Moral Catastrophe"

IN THE 1960S, WHEN THE AMERICAN PUBLIC first became aware of the wretched living conditions and abuse inside government-funded mental institutions, the reaction was swift. States shuttered psychiatric hospitals, released hundreds of thousands of patients and erected formidable legal barriers, through both court precedents and new laws, to ensure that no one could again be forced into treatment. The specter of *One Flew Over the Cuckoo's Nest*, the 1962 novel and subsequent film depicting the horrors inside a state

the streets, the ERs and the correctional system is expensive. While no single study has aggregated how much taxpayers spend caring for the seriously mentally ill, some have found that it costs roughly twice as much to incarcerate an inmate with a mental illness as one without and can run states up to \$100,000 per inmate per year; multiply that by the estimated 356,000 seriously mentally ill inmates. Other studies suggest that it costs federal, state and local governments \$40,000 to \$60,000 to care for a single homeless person with a serious mental illness; multiply that by the estimated 250,000 mentally ill homeless people. Thomas Insel, director of the National Institute of Mental Health (NIMH), has said the total cost to the government—including things like Medicare, Medicaid, disability support and lost productivity—is as much as \$317 billion per year.

None of those dollar figures takes into account the controversial issue of public safety. Part of the source of the controversy is the definition of mental illness, a broad term that includes everything from stress to serious psychosis. As a total population, the millions of Americans who suffer from a mental illness at some point in their lives are no more likely than anyone else to commit a crime. But narrow that population to only those with the most serious mental illnesses, like schizophrenia or bipolar disorder, who do not receive treatment, and it appears to be a different story. A widely cited 2005 study based on NIMH data found a violent-crime rate of 8.3% among those with a “major mental disorder,” compared with 2.1% among those without disorders. A 2008 peer-reviewed analysis that surveyed 31 academic studies found that 12% to 22% of inpatients and outpatients with serious mental illnesses “had perpetrated violence in the past six to 18 months.”

Only 3% to 5% of violent crimes in the U.S. can be attributed to mental illness, according to Duke medical sociologist Jeffrey Swanson. But such tragedies—like Cukor’s death or the 2007 Virginia Tech shooting, in which a student with a mental illness killed 33 people—tend to have a disproportionate impact. They earn headlines, anger the public and motivate politicians to action in a way that the mundane suffering of the homeless or convicted criminals does not.

Course Correction

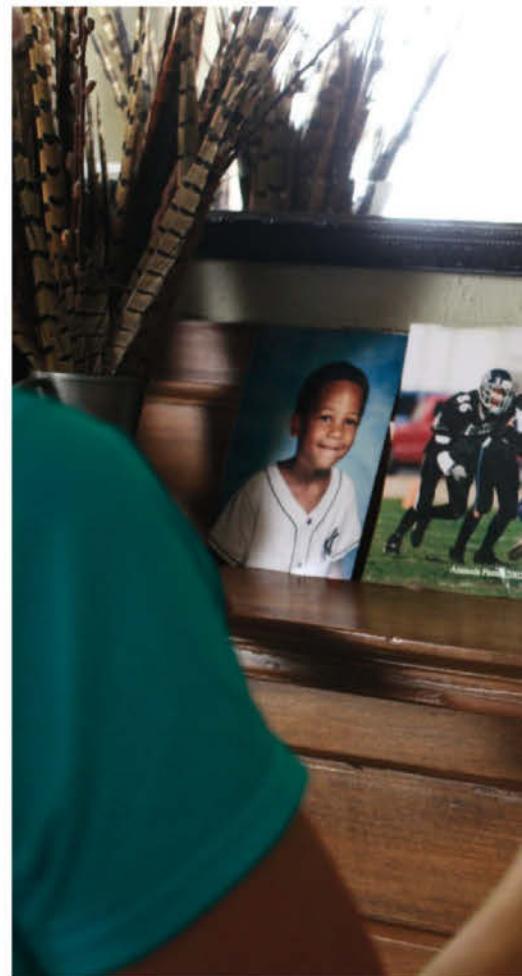
THESE COMPLEX LEGAL AND ETHICAL QUESTIONS have shaken up the politics of the issue. Many liberals who once opposed any form of involuntary treatment on civil rights grounds now find the alternative—mass homelessness, incarceration and victimization—to be morally repugnant. They are joined by fiscal conservatives, who once decried the cost of government-run state institutions but now find it’s even costlier to provide for large populations of inmates with mental illnesses.

Law-enforcement officials and prison guards, who in many cities have the most interaction with the seriously mentally ill, have joined the fray as well. “Officers spend so much of their time responding to the same five or 10 people in a community who are seriously mentally ill,” says former police chief Biasotti. “It’s hard to put a dollar amount on that, but it’s significant.”

Opponents of involuntary-commitment laws are an equally mixed bag, politically. Traditional liberal organizations like the National Disability Rights Network strongly object to any encroachment on the rights of an individual patient. “It’s a slippery slope” back to institutionalization, says Daniel Fisher, a psychiatrist and the founder of the National Coalition for Mental Health Recovery.

These groups often find themselves on the same page as conservatives, including libertarians and officials from the gun lobby, who are concerned about government intrusions on individual rights. The National Rifle Association, for example, opposes the recent California law giving law-enforcement officials the power to temporarily confiscate a person’s firearm if he has been deemed potentially dangerous.

But regardless of strange political bedfellows, the question of reforming the mental-health system ultimately comes down to limited money and conflicting priorities. From 2008 to 2013, more than \$4.4 billion was slashed from state mental-health administrators’ budgets, according to the National Association of State Mental Health Program Directors. Roughly three-fourths of the remaining funds have gone to community-based voluntary treatment and prevention programs. Robert Bernstein, a psychologist at the Bazelon Center for Mental Health Law



Help wanted Daniel DeWitt didn’t believe he was sick and refused to seek psychiatric treatment

in Washington, D.C., says that’s “nowhere near enough” to reach those with the most serious mental illnesses.

Others argue that voluntary treatment programs, no matter how well funded, will never reach those with the most serious illnesses for the simple reason that the sickest of the sick—those suffering from psychosis and delusions—often don’t realize they need help. “It doesn’t make sense to treat people with serious psychiatric illnesses as if they are autonomous operators making fully informed decisions,” says Fishman, the Maryland psychiatrist.

The problem underscores a tension in the field of brain science. As it is, the medical community categorizes psychiatric disorders under the umbrella of “behavioral” illnesses rather than physical ones, a distinction that often limits health care providers’ ability to treat patients without their consent, explains Mary Palaflox, a California nurse whose son suffers from schizophrenia. “If someone comes in disoriented



or confused from a physical brain injury or with a disease like Alzheimer's or autism, you're required by law to treat them," she says. "But if they're disoriented and confused because of a behavioral illness, you can't treat them without their permission. It's an arbitrary distinction."

Treatment as a Civil Right?

FIFTEEN YEARS AGO, LAURA WILCOX, A 19-year-old high school valedictorian who was home from college on summer vacation, was killed in Nevada County, California, by a man with untreated

schizophrenia. Three years later, California passed what became known as Laura's Law, giving judges the power to order a person with a serious mental illness into treatment. Similar laws are now on the books in 45 states, each named after a victim killed by someone with an untreated serious mental illness. There's Kendra's Law in New York, Gregory's Law in New Jersey and Nicola's Law in Louisiana, to name just a few.

While the details of those laws vary, most are similar in the broad strokes: in order for a judge to order an adult with a serious mental illness into what is known as assisted outpatient treatment (AOT), the person must have been recently and repeatedly hospitalized or arrested as a result of his illness, or committed or threatened a serious act of violence on himself or others. Under AOT, a patient can't be forced to take medication; if he refuses treatment, a team of health care workers tasked with providing what's known as wraparound care must simply monitor him to ensure that he remains stable.

In other words, AOT stops significantly short of reinstitutionalization. And yet, while most states have had AOT laws on

the books for years, very few, with the exception of New York, have funded it at the local level. AOT is expensive; it typically requires states and counties to hire a team of health care professionals and invest in new inpatient infrastructure, most of which has been torn down or repurposed since the '60s. In 1955, there was one psychiatric bed for every 300 Americans; in 2005, there was one for every 3,000, and there are even fewer today. While a handful of state and local studies suggest that AOT could end up saving taxpayers money in the long run by limiting the number of arrests and ER visits and reducing the number of homeless and incarcerated, that's a tough sell when state and local coffers remain strapped.

The other reason AOT laws have not been implemented is that they remain wildly controversial. Many patient-advocacy organizations lobby against funding AOT laws by using powerful images depicting the abuse of patients in state hospitals in the 1950s in an effort, as one activist put it, "to remind politicians and citizens what's at stake." Debbie Plotnik, a senior director of state policy at Mental Health America, argues that AOT laws are unnecessary. Other programs like mental-health courts, which allow people with a mental illness to choose inpatient care over prison, offer more effective alternatives, she says.

Meanwhile, advocates for AOT, led by organizations like the Treatment Advocacy Center, say public support has grown in recent years, fueled by anger over acts of violence like Cukor's death or mass shootings. This past summer, San Francisco, Orange and Los Angeles counties all voted to fund Laura's Law. Both the DeWitt and Cukor families have called on Alameda County to follow suit.

Last year, Republican Congressman Tim Murphy of Pennsylvania, who keeps on his desk photographs of the children killed in Newtown, proposed a bill that would direct federal funding to state AOT programs. The bill received 90 bipartisan co-sponsors but never reached a vote. He plans to repropose it this year.

Candy DeWitt, a big supporter of Murphy's bill, says it can't pass soon enough. There are other young men just like Daniel out there right now, she says. "Do we wait until they do something terrible before we get them help?" ■

'We're asking, Do we help the sickest of the sick? If the answer is yes, then how do we do it?'

—MARC FISHMAN, PSYCHIATRIST,
JOHNS HOPKINS BAYVIEW
MEDICAL CENTER

SOCIETY

Someone I Loved Was Never Born

Miscarriage has long been shrouded in shame and secrecy. That's changing

By Sarah Elizabeth Richards

BY THE TIME LIZ ABELE, A REAL ESTATE AGENT from Bethesda, Md., climbed onto an examination table for her 12-week ultrasound one June morning in 2011, she and her husband had already seen the grainy images of their growing fetus three times. They had admired its big head and tiny arms and legs. They had heard the swoosh of the heartbeat. But at this appointment, unlike the earlier ones, Abele, then nearly 40, felt unusually relaxed.

For any woman who has worried about her ability to carry a pregnancy to term, a 12-week ultrasound is a big victory. For Abele, it meant she had made it to the end of the first trimester, during which about 80% of miscarriages occur. It also meant that after spending the previous five years trying unsuccessfully to get pregnant before hitting the jackpot with in vitro fertilization (IVF), Abele could let herself believe she was finally going to be a mom. She was due a week before Christmas, and Abele imagined introducing her baby in red velvet outfits to relatives over the holidays.

Abele and her husband kept their eyes glued to the screen as the technician slid the wand across her belly. She held her breath as she waited for the familiar swoosh sound to fill the room. The technician stopped suddenly and set down

the wand. "I'll be right back," she said. Abele reached for her husband's hand and started to cry. The technician returned with the doctor, who said, "I'm so sorry. There's no heartbeat."

For the next few weeks, Abele couldn't stop crying. "We had waited so long for this pregnancy," she says. "It felt so much worse than I ever could have imagined."

For generations past, when families were larger and medicine less advanced, miscarriages, defined as the death of a fetus before 20 weeks, were a difficult fact of life. Today, in an age of technology that boosts fertility and allows for ever earlier images of a fetus—as well as changing wisdom about how expecting parents can best handle a lost pregnancy—the 15% to 20% of pregnancies that end in miscarriage may exact a greater impact.

Doctors and researchers are increasingly recognizing the toll miscarriage can take on some women's mental health and emotional well-being. The result is a major transformation in the script for how to deal with the loss of a wanted pregnancy, with no agreement on what's healthier: a private and possibly quick form of grief or the growing movement to actively and publicly mourn with mementos and rituals, often over an extended period of time.

► **Little things** Small gifts,
like this knitted baby's
cap, helped Octavia
Monroe feel cared for



And because these things are as personal as just about anything can be, a consensus isn't likely, either.

The Modern Miscarriage

WOMEN ARE HAVING BABIES LATER IN LIFE than ever before. Of the almost 4 million births in the U.S. in 2013, nearly 15% involved women ages 35 to 44—up from 9% in 1990. And an increasing number of women in that age group, like Abele, are seeking fertility treatment, in which the financial and emotional stakes are high.

"The physical gestation might have been eight weeks at the time of miscarriage," says Irving Leon, a psychologist who specializes in reproductive loss and an adjunct associate professor of obstetrics and gynecology at the University of Michigan. "But if a couple struggled to get pregnant, the psychological gestation could have been eight years."

Also, it is increasingly likely that a woman who miscarries will have already seen ultra-detailed images of the fetus in utero via a vaginal or abdominal ultrasound during the first trimester. No matter where you stand on the question of when a fetus becomes an unborn child or a baby, these early technology-enabled encounters can result in an ever stronger emotional attachment for a parent hopeful about a successful pregnancy. "When you can hear the heartbeat and see the image of the body, it's extremely powerful psychologically," explains Leon. "You're more likely to experience the fetus as a baby." Which means the loss can be especially hard to take.

Studies show that the severity of what happens next, the emotional fallout from a desired pregnancy resulting in miscarriage—which can include sadness, shame, anger, guilt and depression—falls along a spectrum. A large study published in the *British Journal of Psychiatry* in 2011 found that about 15% of women who had had a miscarriage experienced depression or anxiety, and for some, those feelings lasted years.

Not surprisingly, according to numerous studies, women who have a weak support network or rocky marriage tend to fare the worst. Research indicates that the loss can be difficult for men too.

Some New Rituals

THERE'S A REVOLUTION UNDER WAY IN THE understanding of how patients and physicians should best deal with the aftermath of a miscarriage. Hospitals, fertility clinics and patient organizations are creating support groups and holding memorial services, as well as Walks to Remember and candle-



Liz Abele at her home in Bethesda, Md., last year

In the year after her miscarriage, she says, "all I could think was, Am I ever going to be a mother?"

light vigils across the country on Oct. 15, which Congress has designated Pregnancy and Infant Loss Remembrance Day.

Medical students are also being trained in how to approach patients after miscarriages. Pregnancy-loss-related message boards and support groups are proliferating online too, like the March of Dimes' Share Your Story.

Some of the new rituals take cues from ones that were once reserved for parents of stillborn babies, defined as fetuses who die after 20 weeks. These can include everything from naming the unborn child, planting a tree, donating to a special charity and holding a memorial to the more controversial practices of holding and being photographed with the fetus' body. There's even a burgeoning cottage industry selling miscarriage-remembrance jewelry and memory boxes.

In the weeks and months after Abele's miscarriage, she was surprised that she couldn't stop crying. Her husband Chris Kepferle, a television-commercial producer who was 50 at the time, tried to make her feel better by cracking jokes. While she wanted to talk about it, he wanted to move on. Her friends' cheery comments—"Don't worry. You'll get pregnant again"—just made her cringe.

Abele and Kepferle ended up taking the advice of their case nurse at Shady Grove Fertility Center in Rockville, Md., to see a counselor. Sharon Covington, the clinic's director of psychological support services, urged them to create a ritual to acknowledge their grief and honor their unborn child. An autopsy indicated the presence of female tissue, and doctors said the child was likely to have been a girl. They decided on the name Christina.

One evening that fall, the couple stood on the white sands of their favorite beach in Indian Shores, Fla., with her parents while Abele read a letter: "This child's life was short, yet her death left a huge void in our hearts and lives. Let us remember the tiny baby who will never reach childhood or adulthood but will remain our tiny baby forever."

After reciting some prayers and psalms, they threw a dozen white roses into the Gulf of Mexico and watched the sun set as waves slowly pushed some to shore and took the rest out to sea.

"I felt like we had done something to move through the grief," says Abele, now 43. Still, the next year was agony. Seeing kids trick-or-treat on Halloween. Receiving holiday cards with photos of smiling families. Passing moms pushing jogging

strollers in their neighborhood. Sometimes, she felt so overwhelmed with sorrow that she declined invitations to baby showers, and she decided to take a break from Facebook. At about the time she would have given birth, Abele put on a brave face to welcome the arrival of her older brother's first child. "I had imagined the cousins growing up together, since they would have been so close in age, and how fun it would be to see them playing on the beach," she says.

The clincher was Mother's Day at church. When the pastor asked all the mothers in the congregation to stand up, Abele stayed in her pew and quietly wept. "All I could think was, Am I ever going to be a mother?" she says.

"It's Been a Month"

IF ABELE IS TYPICAL OF THE NEW WAY OF mourning a miscarriage, Rose Carlson of St. Charles, Mo., exemplifies the old way.

Carlson was 22 when she had her first miscarriage, at 11 weeks, in 1986. Over the next seven years, she had three more—one at five weeks, one at 12 weeks and then one at 10 weeks. After each, doctors discharged her with instructions: Call if she had a fever or excessive bleeding. "No one asked, 'How are you doing emotionally?'" she says.

Carlson gave birth to a son after the second miscarriage. Shortly after giving birth, she experienced two more miscarriages within three months of each other, causing her to fall into a deep depression. Her husband tried to joke with her: "Well, we'll just have fun trying to make more." A friend commented, "You need to get over this. It's been a month."

"People were surprised I should be sad," says Carlson, now 51. "I kept thinking, 'Why am I making such a big deal of this? No one else is.' I felt like a freak." Six months after her last miscarriage, when she was 29, she became pregnant again. She eventually gave birth to three more children.

Ten years ago, Carlson, who was formerly a stay-at-home mom, started volunteering at the national headquarters of Share Pregnancy & Infant Loss Support in St. Charles, and she now works as its program director. Founded in the late 1970s, Share holds seminars for emergency-room staff and hospital social workers and chaplains to teach them to be more sensitive to miscarriage patients, since not all hospitals have separate labor and delivery units. The nonprofit organization runs more than 80 support groups across North America and donates memory boxes and books, crocheted blankets and hats, among other things.

A Smaller Corner

SO HOW DOES ONE BEST MOVE ON FROM A lost pregnancy? Despite the evolution in care, there's still no agreement about what is the most effective way to heal, says Leon.

When Octavia Monroe, a 21-year-old college student from Willingboro, N.J., doubled over in excruciating pain while watching television with her fiancé last summer, she never imagined she would end up at the emergency room in labor at just 21 weeks. It was a stillbirth. "I had held him in my body for five months and felt him move. Then one day he was gone," she says.

Monroe tried a hodgepodge of so-called best practices to deal with stillbirths and miscarriages. She named him Aidan Rodney Bell and was photographed holding his body. She attended a weekly pregnancy-loss support group in which she was inspired by one woman's story of planting a tree in memory of her miscarried baby. Monroe and her mom had Aidan's body cremated, and they placed the urn on a stand in their living room.

But when asked what helped her survive the hardest months, Monroe credits the little things that staff members at Virtua Memorial Hospital in Mount Holly,

N.J., did—making the case that when it comes to losing a pregnancy at any stage, simple kindness might matter most. They gave her a teddy bear in memory of her son. They gave her a baby blanket and a cap and a white gown knitted by local volunteers. They sent flowers to her home with a personal note from her nurse and information about grief rituals. "It just made me feel cared for," says Monroe, who has since given birth to a baby girl. "Your family has to be supportive, but there was something about these strangers giving me hope."

Leon says the overwhelming symptoms of grief usually lessen within nine months to a year. "Initially, it may feel like a tsunami, and waves of grief come one right after the other," he says. "But after a while, they are less intense and less frequent. Women will start to feel like they're getting back to normal."

Whenever Abele talks about Christina, the daughter she lost after the 12th week of pregnancy three years ago, she still gets choked up. But the sorrow occupies a smaller corner of her heart now. It helped that she finally became a mother. After another miscarriage and three more IVF tries, the couple welcomed Andrew Ryan Kepferle into their lives in June last year. ■

Monroe and her boyfriend last year in Willingboro, N.J.

"I had held him in my body for five months and felt him move," she says of her stillborn child. "Then one day he was gone."





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25 BEST INVENTIONS OF 2014

FEATURING
THE REAL-LIFE
HOVERBOARD

WATCHES THAT
REDEFINE SMART

THE FILTER THAT
FIGHTS EBOLA
AND MORE

THE PRICE OF GENIUS

ALAN TURING, THE MAN WHO PIONEERED COMPUTING, ALSO FORCED THE WORLD TO QUESTION WHAT IT MEANS TO BE HUMAN

BY WALTER ISAACSON

Benedict Cumberbatch, who portrays Turing in *The Imitation Game*, out Nov. 28

Photograph by Dan Winters for TIME



A

ALAN TURING, THE INTELLECTUAL father of the modern computer, had a theory. He believed that one day machines would become so powerful that they would think just like humans. He even devised a test, which he called “the imitation game,” to herald the advent of computers that were indistinguishable from human minds. But as Benedict Cumberbatch’s performance in the new movie *The Imitation Game* shows, Turing’s heroic and tragic life provides a compelling counter to the concept that there might be no fundamental difference between our minds and machines.

As we celebrate the cool inventions that sprouted this year, it’s useful to look back at the most important invention of our age, the computer, which along with its accoutrements, microchips and digital networks is the über innovation from which most subsequent Ubers and innovations were born. But despite the computer’s importance, most of us don’t know who invented it. That’s because, like most innovations of the digital age, it has no single creator, no Bell or Edison or Morse or Watt.

Instead, the computer was devised during the early 1940s in a variety of places, from Berlin to the University of Pennsylvania to Iowa State, mainly by collaborative teams. As often seen in the annals of invention, the time was right and the atmosphere charged. The mass manufacture of vacuum tubes for radios paved the way for the creation of electronic digital circuits. That was accompanied by theoretical advances in logic that made circuits more useful. And the march was quickened by the drums of war. As nations armed for conflict, it became clear that computational power was as important as firepower.

Which is what makes the Turing story especially compelling. He was the seminal theorist conceptualizing the idea of a universal computer, he was part of the secret team at Bletchley Park, England, that put theory into practice by building machines that broke the German wartime codes, and he framed the most fundamental question of the computer age: Can machines think?

Having survived a cold upbringing on the fraying fringe of the British gentry, Turing had a lonely intensity to him, reflected in his love of long-distance running. At boarding school, he realized he was gay. He became infatuated with a fair-haired schoolmate, Christopher Morcom, who died suddenly of

tuberculosis. Turing also had a trait, so common among innovators, that was charmingly described by his biographer Andrew Hodges: “Alan was slow to learn that indistinct line that separated initiative from disobedience.”

At Cambridge University, Turing became fascinated by the math of quantum physics, which describes how events at the subatomic level are governed by statistical probabilities rather than laws that determine things with certainty. He believed (at least while he was young) that this uncertainty and indeterminacy at the subatomic level permitted humans to exercise free will—a trait that, if it existed, would seem to distinguish them from machines.

He had an instinct that there were mathematical statements that were likewise elusive: we could never know whether they were provable or not. One way of framing the issue was to ask whether there was a “mechanical process” that could be used to determine whether a particular logical statement was provable.

Turing liked the concept of a “mechanical process.” One day in the summer of 1935, he was out for his usual solitary run and stopped to lie down in a grove of apple trees. He decided to take the notion of a “mechanical process” literally, conjuring up an imaginary machine and applying it to the problem.

The “Logical Computing Machine” that Turing envisioned (as a thought experiment, not as a real machine to be built) was simple at first glance, but it could handle, in theory, any mathematical computation. It consisted of an unlimited length of paper tape containing symbols within squares; the machine would be able to read the symbols on the tape and perform certain actions based on a “table of instructions” it had been given.

Turing showed that there was no method to determine in advance whether any given instruction table combined with any given set of inputs would lead the machine to arrive at an answer or go into some loop and continue chugging away indefinitely, getting nowhere. This discovery was useful for the development of mathematical theory. But more important was the by-product: Turing’s concept of a Logical Computing Machine, which soon came to be known as a Turing machine. “It is possible to invent a single machine which can be used to compute any computable sequence,” he declared.

Turing’s interest was more than theoretical, however. Fascinated by ciphers, Turing enlisted in the British effort to break Germany’s military codes. The secret teams set up shop on the grounds of a Victorian manor house in the drab redbrick town of Bletchley.

ANATOMY OF THE ENIGMA

THE NAZI MACHINE WAS UNCRACKABLE BEFORE TURING. HERE’S HOW IT WORKED

1

To encrypt or decrypt a message, an operator typed on the keyboard.

2

Settings on the plugboard, in combination with the three rotors at the top, determined the code. Many billions of combinations were possible.

3

With each key press, the corresponding coded (or decoded) letter lit up on the output panel, allowing the operator to copy down the message.

Zur Beachtung!

- Beachte die Gebrauchsanleitung für die Chiffriermaschine (H. Dv. g. 13)**
1. Zur Sicherung der Walzenkontakte alle Walzen mehrmals gegenläufig vor- und rückwärtsdrehen.
 2. Zur Sicherung der Tastenkontakte ständige Tasten vor Einschaltung des Stromes mehrmals kräftig herunterdrücken und hochschmeißen lassen, wobei eine Taste dauernd gedrückt bleibt.
 3. Bei Einstellung der in den Fenstern sichtbaren Zeichen beachten, daß die Walzen richtig gerichtet sind.
 4. Die Walzenkontakte eines abgesetzten Steckers nicht bis zum Anschlag in ihre Sicherposition einzieh föhren. Die vorherige Maßnahme ist besonders zu empfehlen, da sonst die Kontakte leicht beschädigt werden können.
 5. Lässt sich bei Testendruck keine Lampe auf, so sind die Batterie, Ihre Kontaktfedern, Ihre Anschlüsse am Umschalter und das Umschalter zu prüfen.
 6. Leuchtet bei Tastendruck eine oder mehrere Lampen nicht auf, so sind die entsprechenden Lampen, die Kurbelwelle, die Walzen, die abgesetzten Stecker, die Steckerschrauben einschließlich ihrer Kontakte, die Walzenkontakte, die Arbeitskontakte unter den jeweils gedrückten Tasten und die Ruhkontakte unter den mit ihnen korrespondierenden Tasten zu prüfen und bei etwa vorhandenen Ver schmutzungen mit einem sauberen Lappen zu löschen. (Grafik siehe Bild 2).
 - Von Maschine Nr. A 4388 ab diesen zur Kohleprüfung die Öffnung auf der rechten Lampenschaltfläche.
 - Von Maschine Nr. A 4388 ab diesen zur Kohleprüfung die äußerste linke und rechte Buchse der mittleren Balken mit Steckern und die Kabelabgriffsringe auf der linken Lampenschaltfläche.
 7. Walzen und Walzenkontakte müssen mindestens alle 3 bis 6 Monate durch einen Lagerstellen bis und wieder mit harz- und abresinfreiem Öl leicht einsetzen. Die festen Kontakte der Walzen sind offen-
bar 3-8 Wochen mit Paraffinöl überstrichen und mit einem wenig getrockneten Ölappan abzureiben.
Die Tastenfedern der Lampenkontakte, die im Gehäuse befindliche sind vor Öl zu schützen.
 8. Schlüsselwechsel erfolgt entweder durch Zahlen oder Buchstaben.
- Zum Umsetzen der Zahlen in Buchstaben oder umgekehrt dieses nachstehende Tafel:
- | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

1

2

3



Turing was assigned to a group tackling the Germans' Enigma code, which was generated by a portable machine with mechanical rotors and electrical circuits. After every keystroke, it changed the formula for substituting letters.

Turing and his team built a machine, called "the bombe," that exploited subtle weaknesses in the German coding, including the fact that no letter could be enciphered as itself and that there were certain phrases that the Germans used repeatedly. By August 1940, Turing's team had bombes that could decipher German messages about the deployment of the U-boats that were decimating British supply convoys.

The bombe was not a significant advance in computer technology. It was an electro-mechanical device with relay switches rather than vacuum tubes and electronic circuits. But a subsequent machine produced at Bletchley, known as Colossus, was a major milestone.

The need for Colossus arose when the Germans started coding important messages, including orders from Hitler, with a machine that used 12 code wheels of unequal size. To break it would require using lightning-quick electronic circuits.

The team in charge was led by Max Newman, who had been Turing's math don at Cambridge. Turing introduced Newman to the electronics wizard Tommy Flowers, who had devised wondrous vacuum-tube circuits while working for the British telephone system.

They realized that the only way to analyze German messages quickly enough was to store one of them in the internal electronic memory of a machine rather than trying to compare two punched paper tapes. This would require 1,500 vacuum tubes. The Bletchley Park managers were skeptical, but the team pushed ahead. By December 1943—after only 11 months—it produced the first Colossus machine. An even bigger version, using 2,400 tubes, was ready by June 1, 1944. The machines helped confirm that Hitler was unaware of the planned D-Day invasion.

Turing's need to hide both his homosexuality and his codebreaking work meant that he often found himself playing his own imitation game, pretending to be things he wasn't. At one point he proposed marriage to a female colleague (played by Keira Knightley in the new film), but then felt compelled to tell her that he was gay. She was still willing to marry him, but he believed that imitating a straight man would be a sham and decided not to proceed.

After the war, Turing turned his attention

Q & A

MR. SMART GUY

BENEDICT CUMBERBATCH ON ALAN TURING, VINTAGE VIDEO GAMES AND WHY HE'S SO GOOD AT PLAYING COMPLICATED GENIUSES

BY THOMAS E. WEBER

You've played a lot of intriguing characters over the years—everyone from Alan Turing to the voice of a dragon in *The Hobbit* to Stephen Hawking. How many of them would you say are geniuses?

I'm not going to do this in any particular order, but Hawking, Frankenstein, Joseph Hooker [the British botanist in *Creation*], Oppenheimer, Turing, Assange, Van Gogh—a genius. And Sherlock.

I think you also have to count the genetically engineered superman.

Yeah, Khan [from *Star Trek*] is definitely smart.

You research these men before you play them. Do they have anything in common?

Well, they're unique personalities—people who are seemingly so different that they remain in existence sort of separate from the rest of us. That is always very attractive to focus in on as an actor. My great enjoyment with these characters is to show that no, they are human beings. They have loves and likes and dislikes. They have all the sort of polarities that we experience in the human condition. But with some sort of special filters added in.

Turing was one of history's great inventors, credited with pioneering the idea of a programmable computer and envisioning the possibility of artificial intelligence. When

you tell people about him, do they know who he is?

No, and they're shocked. Everyone goes, Why didn't I know about this story? This man's achievements are extraordinary. Everything that's been thrown at computers—all of it has only managed to work because of his idea of creating something universal in the first place.

There's also a spiritual side to his work, right? He raised questions about free will and machine vs. man.

As a philosopher, he was profoundly affected by the idea that if we could achieve artificial intelligence, could artificial intelligence achieve feeling and what we call *will* itself? Could it evolve a consciousness? Could it become self-aware? Could it make decisions? Could it fall in love?

Turing's biographer Andrew Hodges said he was "slow to learn that indistinct line that separated initiative from disobedience." How much of genius do you think is about rebelliousness?

People who push boundaries help us evolve socially, intellectually, culturally—in any field of life, any sphere.

But at a cost to themselves.

Because they're in opposition to the majority. But those are the revolutionaries, the pioneers. Those are the people who actually help us, as a race, progress.



"He asked the most profound questions about the nature of human identity," says Cumberbatch of Turing, whom he plays in The Imitation Game

How do you convey that kind of complexity and intelligence in a character?

With Sherlock, it's the pyrotechnic of making the connections very quick. That's a joy to play. It's really hard work and it's frustrating as hell, but it's very rewarding. But to convey intelligence? I don't know. Maybe I have my mother to thank for that. Just the eyes, I think they are the windows to the soul. And I think they're also the windows to the mind that's driving that soul, doesn't believe in the soul or is computing whether a soul could be made out of... metal and wire and glass. In the case of Alan.

So it's about a lot more than dialogue.

Oh yeah. These people are all incredibly different personalities, in their bodies as well as in their minds. The unified things we could talk about are pretty obvious. A

“
MY ARGUMENT IN HUMANIZING THESE PEOPLE—THROUGH SORT OF BEING AN ACTOR WHO EMPATHIZES WITH HIS CHARACTERS—is that [that arrogance] is born out of necessity. IT'S NOT SOMETHING TO JUDGE THEM BY.

—BENEDICT CUMBERBATCH

lot of them come up against obstacles, whether they're bureaucratic or conservative. They're pushing against a sort of unrelenting, unforgiving world that doesn't want anything out of place or muddled with or made different. Sometimes that's viewed as arrogance. My argument in humanizing these people—through sort of being an actor who empathizes with his characters—is that [that arrogance] is born out of necessity. It's not something to judge them by.

Were you into computers as a kid? Not necessarily to the extent of Turing or Hawking—just in general.

I was a little bit, but not to any level of expertise. I wrote programs on BBC computers. We had computing lessons where you'd actually write coded commands to create programs to play little games or build up a Christmas tree on a BBC computer.

But computers were more interesting to me when you could put a little packet in them and protect the world from nuclear strike on an Atari console or a Commodore 64. [I also liked] the little Nintendo, the handheld *Donkey Kong Jr.* things. And then I was always into the Sega Game Gear. That was my real interest in computing—having fun with games.

Do you still play games?

I don't. I don't have time. You go to bed at night sweating that you haven't done a good day's work or that you haven't read that book. I'd love to, though.

You recently announced your engagement in the U.K. newspaper the *Times*, as many British noncelebrities do. How come?

I'm slightly old-fashioned. It's what I would have done if I weren't famous. That's the idea. It's to normalize it. So it was just about me announcing it in a traditional manner—traditional in the sense that lots of people still do that.

Our Best Inventions package in this issue features new technologies that even the geniuses you play probably didn't imagine—a wearable chip that buzzes to improve your posture, a smart watch that monitors your heart-beat, even edible ice cream wrappers. Which sounds best to you?

Edible ice cream wrappers, tick. Definitely up for that. Not just because you can eat them, but because they're biodegradable. That's where technology should go—toward making us be able to sustain our life here on earth.

to an issue that he had wrestled with since his boarding-school friend Christopher Morcom's death: Did humans have "free will" and consciousness, perhaps even a soul, that made them fundamentally different from a programmed machine? By this time Turing had become skeptical. He was working on machines that could modify their own programs based on information they processed, and he came to believe that this type of machine learning could lead to artificial intelligence.

In a 1950 paper, he began with a clear declaration: "I propose to consider the question, 'Can machines think?'" With a schoolboy's sense of fun, he invented his "imitation game," now generally known as the Turing test, to give empirical meaning to that question. Put a machine and a human in a room, he said, and send in written questions. If you can't tell which answers are from the machine and which are from the human, then there is no meaningful reason to insist that the machine isn't "thinking."

A sample interrogation, he wrote, might include the following:

Q: Please write me a sonnet on the subject of the Forth Bridge.

A: Count me out on this one. I never could write poetry.

Q: Add 34957 to 70764.

A: [Pause about 30 seconds and then give as answer] 105621.

Turing did something clever in this example. Careful scrutiny shows that the respondent, after 30 seconds, made a slight mistake in addition. (The correct answer is 105,721.) Is that evidence that the respondent was a human? Perhaps. But then again, maybe it was a machine cagily playing an imitation game.

Many objections have been made to Turing's proposed test. "Not until a machine can write a sonnet or compose a concerto because of thoughts and emotions felt, and not by the chance fall of symbols, could we agree that machine equals brain," declared a famous brain surgeon, Sir Geoffrey Jefferson. Turing's response seems somewhat flippant, but it was also subtle: "The comparison is perhaps a little bit unfair because a sonnet written by a machine will be better appreciated by another machine."

There was also the more fundamental objection that even if a machine's answers were indistinguishable from a human's, that did not mean it had consciousness and its own intentions, the way human minds do. When the human player of the Turing test uses words, he associates those words with real-world meanings, emotions, experiences, sensations and perceptions. Machines don't.

Without such connections, language is just a game divorced from meaning. This critique of the Turing test remains the most debated topic in cognitive science.

Turing gave his own guess as to whether a computer might be able to win his imitation game. "I believe that in about 50 years' time it will be possible to program computers ... so well that an average interrogator will not have more than a 70% chance of making the right identification after five minutes of questioning."

Fooling fewer than a third of interrogators for only five minutes is a pretty low bar. Still, it's now been more than 60 years, and the machines that enter Turing-test contests are at best engaging in gimmicky conversational gambits. The latest claim for a machine having "passed" the test was especially lame: a Russian program pretended to be a 13-year-old from Ukraine who didn't speak English well. Even so, it fooled barely a third of the questioners for five minutes, and no one would believe that the program was engaging in true thinking.

A new breed of computer processors that mimic the neural networks in the human brain might mean that, in a few more years or decades, there may be machines that appear to learn and think like humans. These latest advances could possibly even lead to a singularity, a term that computer pioneer John von Neumann coined and the futurist Ray Kurzweil and the science-fiction writer Vernor Vinge popularized to describe the moment when computers are not only smarter than humans but also can design themselves to be even supersmarter and will thus no longer need us mortals. In the meantime, most of the exciting new inventions, like those in this issue, will involve watches, devices, social networks and other innovations that connect humans more closely to machines, in intimate partnership, rather than pursuing the mirage of machines that think on their own and try to replace us.

The flesh-and-blood complexities of Alan Turing's life, as well as the very human emotions that drove him, serve as a testament that the distinction between man and machine may be deeper than he surmised. In a 1952 BBC debate with Geoffrey Jefferson, the brain surgeon, this issue of human "appetites, desires, drives, instincts" came up. Man is prey to "sexual urges," Jefferson repeatedly said, and "may make a fool of himself."

Turing, who was still discreet about his sexuality, kept silent when this topic arose. During the weeks leading up to the broadcast, he had been engaged in a series of actions that

THE FLESH-
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COMPLEXITIES OF
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TESTAMENT THAT
THE DISTINCTION
BETWEEN MAN AND
MACHINE MAY BE
DEEPER THAN HE
SURMISED



Turing in 1951,
three years before
his death

NEW!

JUBLIA®
(efinaconazole)
Topical Solution 10%



Introducing JUBLIA — a NEW FDA-approved prescription topical solution proven to treat toenail fungus (onychomycosis).

JUBLIA is specifically formulated to reach the site of onychomycosis and fight the fungus that can live beneath the toenail — allowing some patients to have clearer toenails grow back. It's time to take the fight to toenail fungus.

Indication

JUBLIA (efinaconazole) Topical Solution, 10% is a prescription medicine used to treat fungal infections of the toenails.

Important Safety Information

- JUBLIA is for use on nails and surrounding skin only. Do not use JUBLIA in your mouth, eyes, or vagina. Use it exactly as instructed by your doctor.
- It is not known whether JUBLIA is effective in children.
- Before you use JUBLIA, tell your doctor about all your medical conditions, including if you are or plan to become pregnant, are breastfeeding, or plan to breastfeed, because it is not known whether JUBLIA can harm an unborn fetus or nursing infant. Tell your doctor about all medications you are taking, and whether you have any other nail infections.

TOENAIL FUNGUS?
—DON'T HIDE IT—
★ FIGHT IT ★
WITH JUBLIA

Individual results
may vary



Ask your doctor
if JUBLIA is right
for you and visit
JubliaRx.com

- JUBLIA is flammable. Avoid heat and flame while applying JUBLIA to your toenail.
- Avoid pedicures, use of nail polish, or cosmetic nail products while using JUBLIA.
- JUBLIA may cause irritation at the treated site. The most common side effects include: ingrown toenail, redness, itching, swelling, burning or stinging, blisters, and pain. Tell your doctor about any side effects that bother you or do not go away.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

Please see Patient Information for JUBLIA on next page.

PATIENT INFORMATION

JUBLIA (joo-blee-uh)

(efinaconazole) Topical Solution, 10%

This Patient Information does not include all the information needed to use JUBLIA safely and effectively. Please see full Prescribing Information.

Important information: JUBLIA is for use on toenails and surrounding skin only. Do not use JUBLIA in your mouth, eyes, or vagina.

What is JUBLIA?

JUBLIA is a prescription medicine used to treat fungal infections of the toenails. It is not known if JUBLIA is safe and effective in children.

What should I tell my healthcare provider before using JUBLIA?

Before you use JUBLIA, tell your healthcare provider about all your medical conditions, including if you:

- are pregnant or plan to become pregnant. It is not known if JUBLIA can harm your unborn baby.
- are breastfeeding or plan to breastfeed. It is not known if JUBLIA passes into your breast milk.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

How should I use JUBLIA?

See the "Instructions for Use" at the end of this Patient Information leaflet for detailed information about the right way to use JUBLIA.

- Use JUBLIA exactly as your healthcare provider tells you to use it. Apply JUBLIA to your affected toenails 1 time each day. Wait for at least 10 minutes after showering, bathing or washing before applying JUBLIA. JUBLIA is used for 48 weeks.

What should I avoid while using JUBLIA?

- JUBLIA is flammable. Avoid heat and flame while applying JUBLIA to your toenail.
- Avoid pedicures, use of nail polish, or cosmetic nail products, while using JUBLIA.

What are the possible side effects of JUBLIA?

JUBLIA may cause irritation at the treated site. The most common side effects include: ingrown toenail, redness, itching, swelling, burning or stinging, blisters, and pain. Tell your healthcare provider if you have any side effects that bother you or that does not go away.

These are not all the possible side effects of JUBLIA.

Call your doctor for medical advice about side effects. You may report side effects to the FDA at 1-800-FDA-1088.

How should I store JUBLIA?

- Store JUBLIA at room temperature, between 68°F to 77°F (20°C to 25°C). Do not freeze JUBLIA.
- Keep the bottle tightly closed and store in an upright position.
- JUBLIA is flammable. Keep away from heat and flame.

Keep JUBLIA and all medicines out of the reach of children.

General information about the safe and effective use of JUBLIA

Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. You can ask your pharmacist or healthcare provider for information about JUBLIA that is written for health professionals. Do not use JUBLIA for a condition for which it was not prescribed. Do not give JUBLIA to other people, even if they have the same condition you have. It may harm them.

What are the ingredients in JUBLIA?

Active ingredients: efinaconazole

Inactive ingredients: alcohol, anhydrous citric acid, butylated hydroxytoluene, C12-15 alkyl lactate, cyclomethicone, diisopropyl adipate, disodium edetate, and purified water.

Manufactured for: Valeant Pharmaceuticals North America LLC, Bridgewater, NJ 08807 USA

Manufactured by: Kaken Pharmaceutical Co. Ltd, Shizuoka, Japan. Product of Japan

For more information, call 1-800-321-4576.

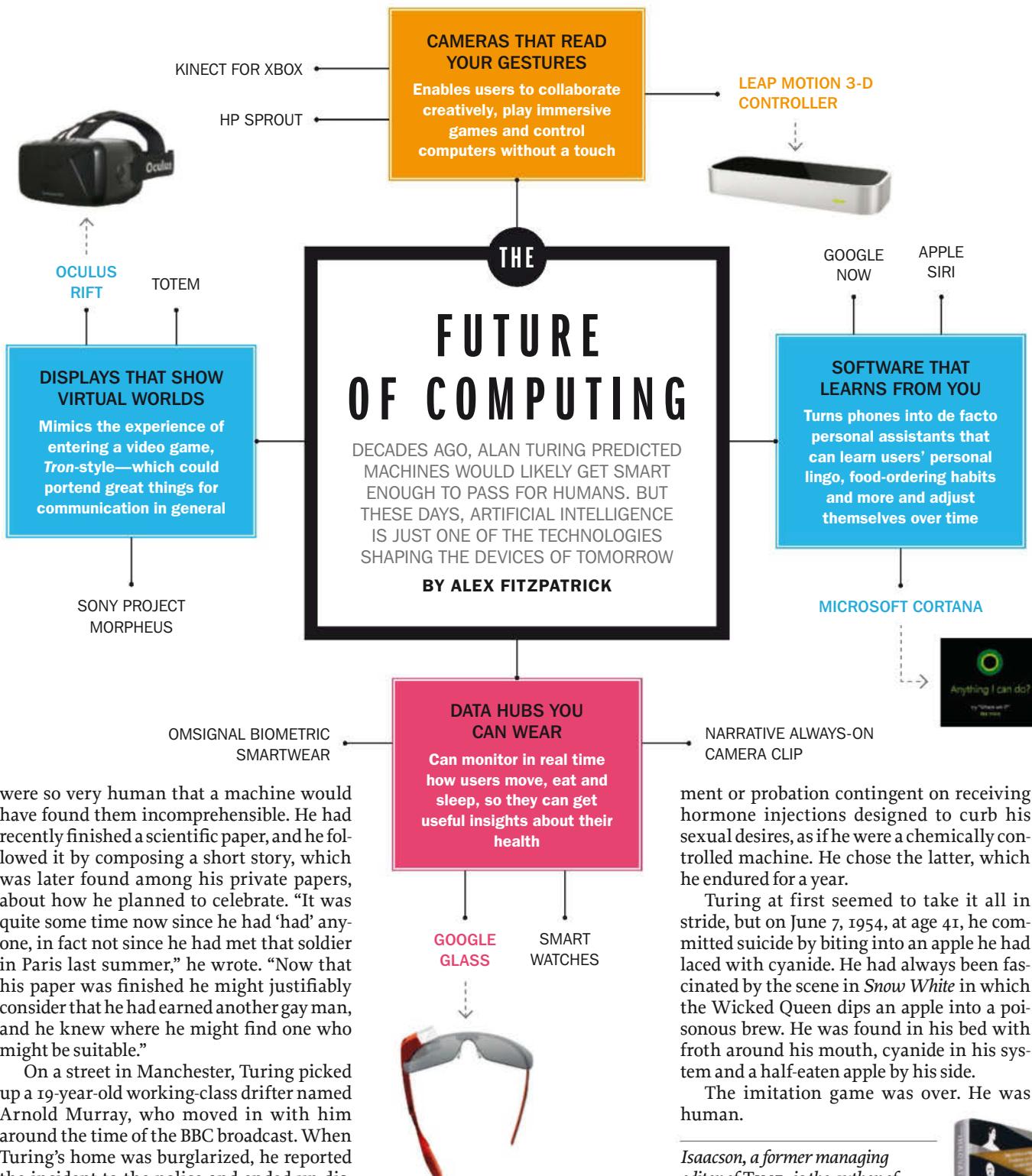
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Issued: 06/2014 9391901





Machines have feelings too Cumberbatch and Knightley are puzzle-solving cryptanalysts who share an enigmatic bond

DANCING WITH DR. STRANGE

BENEDICT CUMBERBATCH EMBODIES THE ISOLATION OF A MAN WITH A MACHINELIKE MIND IN *THE IMITATION GAME* BY RICHARD CORLISS

CUMBERBATCH: IT SOUNDS LIKE SOMETHING YOU'D FIND IN AN eccentric prelate's vegetable garden. Benedict's mother Wanda Ventham advised him to choose a moniker less ... cumbersome ... for his acting career; his father went by the stage name Timothy Carlton. But the young man must have appreciated the curious loftiness of this word, which comes from Old English and loosely means "stream in a valley." And after all, the name was his. So he found roles suitable for a Benedict Cumberbatch: men above and apart, like Sherlock Holmes in the BBC series, Julian Assange in *The Fifth Estate*, Stephen Hawking in a TV movie. Fantasy filmmakers recognized his intimidating radiance and cast him as Khan in *Star Trek Into Darkness* and the Necromancer and Smaug in the *Hobbit* movies. Soon he will be Marvel's Sorcerer Supreme, Doctor Strange.

Alan Turing in *The Imitation Game* may be the actor's oddest, fullest, most Cumberbatchian character yet. The Cambridge genius who fathered the modern computer, known as the Turing machine—and who presciently asked, "What if only a machine could defeat another machine?"—seems part machine himself. Carrying himself with the hauteur of some creature from an advanced species on its first trip to Earth, he joins the Bletchley Park team charged with breaking the Nazis' devious Enigma code and airily dismisses the theories of team leader Hugh Alexander (Matthew Goode), while defying the orders of Army Commander Denniston (Charles Dance) by going directly to Winston Churchill. A marathoner as well as a mathematician, Turing is the lonely long-distance runner who intellectually laps his colleagues while insisting on making all the crucial decisions. Why? "Because no one else can." They are merely clever; he is brilliant. And in wartime, when results trump politesse, brilliance wins.

SOMETIMES IT IS
THE PEOPLE NO
ONE IMAGINES
ANYTHING OF WHO
DO THE THINGS
THAT NO ONE CAN
IMAGINE.

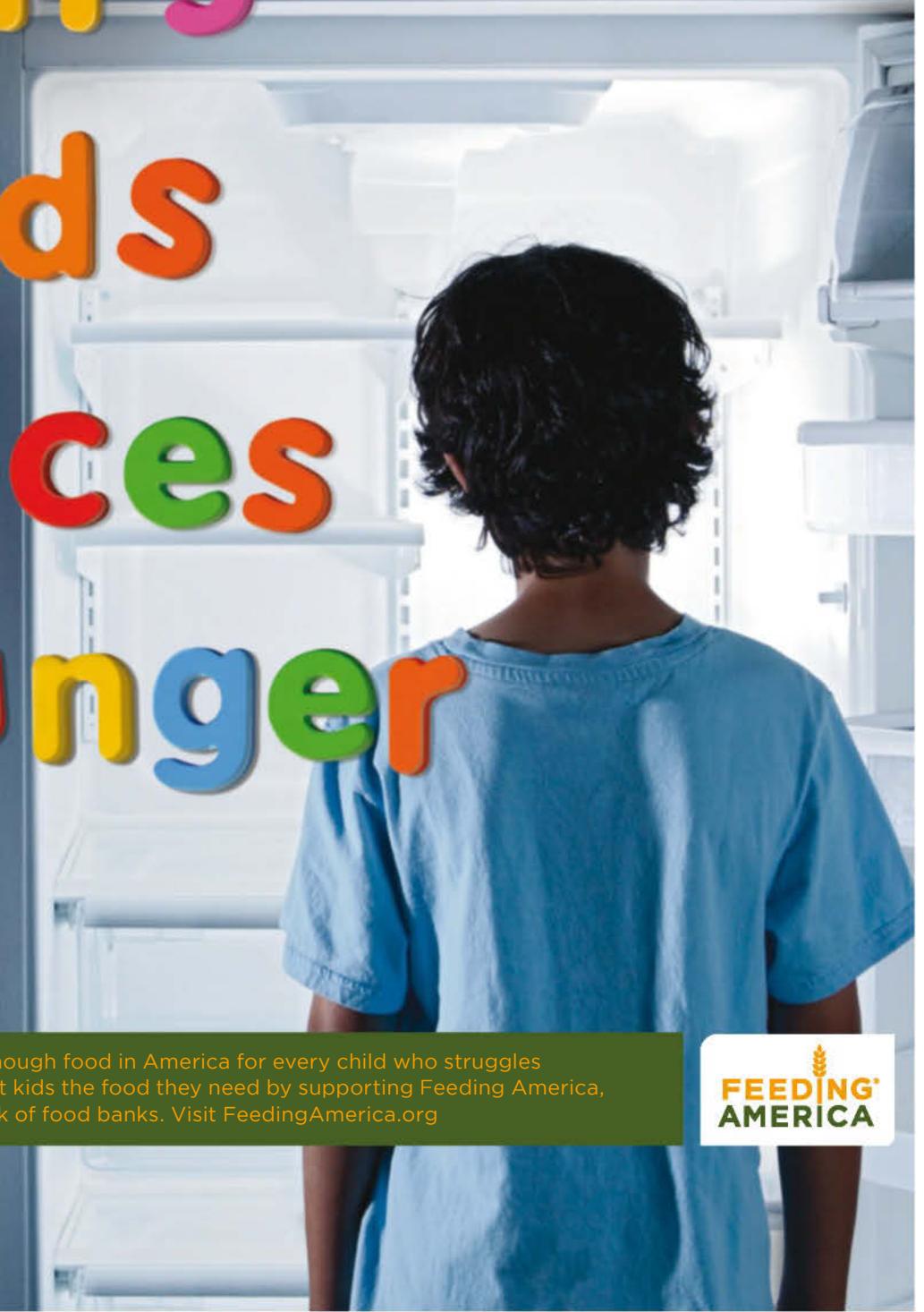
—BENEDICT
CUMBERBATCH, AS
ALAN TURING IN *THE
IMITATION GAME*

On its bright face, *The Imitation Game*, written by Graham Moore and directed by Morten Tyldum, fits into that cozy genre of tortured-genius biopics that sprout like kudzu just in time for the Oscars. But that's not fair to the film, which outthinks and outplays other examples of the genre (*The King's Speech*, *The Theory of Everything*) just as Turing outraced those around him. For this is a superhero movie of the mind. Unlike the Marvel troupe, whose skills are physical and endlessly watchable, Turing makes magic in his head. The beautiful wheels spin inside; that's where he flies. And he defeats the villains of unsolvable equations not with a punch but with a key-punch. The "action" here is Turing tinkering with his machine. Or simply thinking—which, as Cumberbatch portrays it, is adventure of the highest order.

The actor doesn't play Turing so much as inhabit him, bravely and sympathetically but without mediation; that's your job. He recognizes that this supernal machine had a flaw, or thought it did. Turing's Achilles heel was his heart, and his shielding his sexuality from his colleagues helps explain his emotional reticence, as the bullying he suffered at school almost justifies the pleasure he takes in being top dog at Bletchley Park. He even proposes marriage to the Enigma team's one woman, Joan Clarke (Keira Knightley), as a cover for homosexual activities that were illegal in Britain throughout his life, and the penalties for which hastened his death. This superhero is really a tragic hero, doomed not by his "crime" but by society's ignorant prejudice.

Critics won't need a Turing machine to pick one of the most smartly judged, truly feeling movies of the year or its most towering, magnetic performance. And though the star's achievement should be its own reward, he is sure to receive many prizes this Oscar season. He deserves a Cumberbatch of them. ■

1 in 5
kids
faces
hunger



There's more than enough food in America for every child who struggles with hunger. Help get kids the food they need by supporting Feeding America, a nationwide network of food banks. Visit FeedingAmerica.org



FOR THE

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THE BEST
INVENTIONS
POWERING
TECHNOLOGIES
OF TOMORROW

Circular "hover engines" create a magnetic field to lift the board above a conductive surface, like aluminum





THE REAL-LIFE HOVERBOARD

HENDO HOVERBOARD / \$10,000

PREORDER AT HENDOHOVER.COM

The hoverboard—a type of skateboard that levitates like a magic carpet—had been a pipe dream since its fictional debut in 1989's *Back to the Future Part II*. Now California-based tech firm Hendo has built the real thing.

Granted, there are caveats. Hendo's hoverboard can float only an inch or so above the ground, and even then only over conductive material like copper or aluminum. Just 10 are being made to order (so far). And battery life is 15 minutes—barely enough time to zoom past your enemies à la Marty McFly.

But the technology that powers it could be revolutionary. Using the \$450,000-plus it raised on Kickstarter, Hendo founders Jill and Greg Henderson plan to develop **magnetic “hovering” tech to stabilize buildings during earthquakes**, protect valuable works of art and more. “The hoverboard is the first step to bringing this technology to the world,” says Greg.



THE SUPERSMART SPACECRAFT

MANGALYAN / DEVELOPED BY THE
INDIAN SPACE REGIONAL ORGANIZATION

Nobody gets Mars right on the first try. The U.S. didn't, Russia didn't, the Europeans didn't. But on Sept. 24, India did. That's when the Mangalyaan (Mars craft in Hindi) went into orbit around the Red Planet, a technological feat no other Asian nation has yet achieved. **Building the craft cost India just \$74 million, less than the budget for the film Gravity.** At that price, the Mangalyaan is equipped with just five onboard instruments that allow it to do simple tasks like measure Martian methane and surface composition. More important, however, it allows India to flex its interplanetary muscles, which portends great things for the country's space program—and for science in general.



The Mangalyaan is one of just 18 probes to successfully complete a Mars mission since 1960

WHAT'S NEXT FOR ...

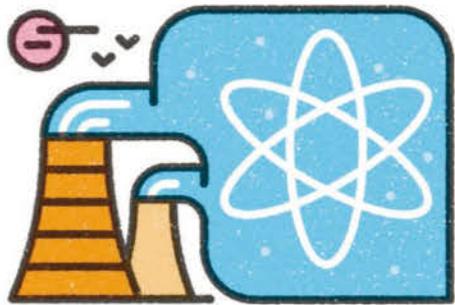
SMART GADGETS

A CONSCIOUS HOME



IT WON'T BE A QUESTION ANYMORE OF WHETHER THINGS ARE CONNECTED. WE'RE GOING TO MOVE TOWARD A LEARNING MODEL WHERE YOUR HOME ACTUALLY OBSERVES HOW YOU'RE LIVING INSIDE IT AND ADAPTS ITSELF TOWARD YOUR NEEDS.

—GEORGE YIANNI, INVENTOR OF THE PHILIPS HUE CONNECTED LIGHTBULB



A REACTOR THAT COULD REALIZE NUCLEAR FUSION

HIGH-BETA FUSION REACTOR

DEVELOPED BY LOCKHEED MARTIN

Nuclear fusion—the production of energy from the fusion of hydrogen nuclei—has always been the holy grail of energy: it's endlessly productive and largely clean—and so far, it's remained elusive. But in October, Lockheed Martin said it had achieved a technological breakthrough that will enable it to make compact fusion reactors small enough to fit on the back of a truck within a decade. The design uses "magnetic mirror confinement" to control the reaction. Absent further details on how it works, some outside scientists are skeptical. But if Lockheed really can produce a workable fusion reactor, the world of energy may never be the same.



WIRELESS ELECTRICITY

WITRICITY / IN DEVELOPMENT FOR TOYOTA CARS, INTEL PCS AND MORE

We already have wireless Internet and wireless phones. Why, then, are everyday appliances still shackled to the wall? To be sure, there are a few power-mat chargers for small gadgets like phones. But WiTricity, based in Watertown, Mass., is thinking big. Its technology—involving a plug-in coil that creates a magnetic field, which in turn powers objects as far away as 8 ft. (2.4 m)—has been tested on Toyota electric cars (with charging mats), Intel PCs (with charging pads) and more. Within 10 years, says CEO Alex Gruzen, rooms could be wired so that all appliances—lamps, TVs, stereos—pull power from a central charging base.

3-D- PRINTED EVERYTHING

A machine that can build any object. It sounds like a sci-fi fantasy, but thanks to the rise of 3-D printers—devices that can build objects from digital blueprints, usually by layering plastic or other materials—it is rapidly becoming reality.

That's a boon for consumers and corporations alike. In the past year alone, middle-school students have 3-D-printed stock cars for physics lessons, scientists have 3-D-printed tissues for human organs, and GE has used 3-D printing to improve the efficiency of its jet engines.

"This is one of those technologies that literally touches everything we do," says Avi Reichental, CEO of 3D Systems, whose 3-D printers produce candy and musical instruments, among other objects.

3-D-PRINTED CANDY

DEVELOPED BY 3D SYSTEMS

The sugar designs at right were made with ChefJet, a \$5,000 device that allows chefs to "print" flavored confections





3-D-PRINTED SHOES

DEVELOPED BY
CONTINUUM

This \$265 pair of heels features plastic soles and a hollow base that makes them lighter than traditional pumps



3-D-PRINTED CAR

DEVELOPED BY LOCAL
MOTORS

The \$18,000-plus Strati model is made from plastic reinforced with carbon fiber and can travel at speeds of up to 50 m.p.h. (80 km/h)



3-D-PRINTED PROSTHESES

DEVELOPED BY THE
OPEN HAND PROJECT

The Dextrus emulates bones in human hands and costs just \$1,000, far cheaper than most prostheses



A STAR ALLIANCE MEMBER

WIDEN YOUR
WORLD

TURKISH
AIRLINES



MEET ISTANBUL

FOR

L
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THE BEST
INVENTIONS
SOLVING
EVERYDAY
PROBLEMS



The crown lets users navigate without obscuring the watch face with their finger



When giving directions, the Watch can gently squeeze the wrist to help indicate which way to turn

WATCHES THAT REDEFINE SMART

APPLE WATCH / \$349+

AVAILABLE EARLY 2015

MOST SMART WATCHES HAVE PROVED TO be anything but: they try to shrink down the experience of using a cell phone, with clunky results. Apple's Watch, by contrast, wholly reimagines the computer for the wrist, using a novel interface that combines a touchscreen and physical buttons. **Besides telling time, the Watch can send messages, give directions, track fitness and make wireless payments.** It's also an attractive piece of fashion, with high-end Edition models that feature 18-karat gold. "Apple poured its heart and soul into the design," says Robert Brunner, founder of San Francisco design studio Ammunition and a former director of industrial design at Apple. "It's brave because they're venturing into unknown territory."

Photo-illustration by Justin Fanti for TIME

THE SMARTPHONE THAT PUTS PRIVACY FIRST

BLACKPHONE / \$629

AVAILABLE AT BLACKPHONE.CH

NEARLY HALF OF AMERICANS DON'T FEEL safe sharing private information over a cell-phone call, according to Pew. So how can phone owners conceal their data? Enter the Blackphone, a smartphone designed to put privacy above all else. The device, developed by the company of the same name and accelerated after the Snowden leaks, **runs a customized Android operating system stripped of features that might make data vulnerable**, like calendar sync. It also comes with software that encrypts calls, texts and browsing history at levels far beyond normal smartphones (which could make the Blackphone a target of law-enforcement officials, who say encryption technology makes it harder for cops to catch criminals). But even with a Blackphone, users should be careful about what they type or upload. As Blackphone CEO Toby Weir-Jones explains, "It's dangerous to assume anything is a magic invisibility cloak."



WHAT'S NEXT FOR
TRANSPORTATION

FLYING CARS



“
JUST IMAGINE BEING ABLE TO HOP IN YOUR CAR AND SAY, ‘I WOULD LIKE TO GO TO NEW YORK TODAY.’ WE TALK ABOUT IT AS IF IT’S GOING TO BE A CAR. IT’S PROBABLY GOING TO BE NOTHING LIKE IT, BUT I THINK THE DISRUPTION OF AIR TRAVEL IS AN AMAZING THING.

—JAY ROGERS, CEO OF 3-D-PRINTED-CAR COMPANY LOCAL MOTORS



THE COOLER THAT POWERS YOUR PARTY

COOLEST COOLER / \$299

PREORDER AT COOLEST.COM
(TO SHIP IN EARLY 2015)



The Coolest comes with plates and cutlery in built-in storage

For more than 60 years, coolers have done a fine job putting party refreshments on ice. But that wasn't good enough for Ryan Grepper. "We wanted the cooler to be a place where people gather—to have all the things that make a space somewhere you'd want to hang out," says the former medical sales rep.

The result is the world's smartest all-purpose party starter. It stores food and drinks, sure. But it also touts a blender ("for vodkaritas," Grepper offers), an LED lid light ("to see if you're reaching for beer or Clamato juice"), a USB charger ("so nobody's phone dies"), a Bluetooth speaker (for tunes) and big wheels designed to navigate many terrains (beach, parking lot). "I just want to make the coolest cooler out there," says Grepper. Hence the name: Coolest Cooler.

Since Grepper's prototype first appeared on Kickstarter earlier this year, **roughly 63,000 backers have contributed \$13.3 million to make it a reality.** It's now the most funded creation in the site's history, besting hits like the Pebble smart watch and Oculus Rift's virtual-reality glasses.

Photograph by Tara Johnson for TIME



THE CHIP THAT STOPS YOUR SLOUCHING

LUMO LIFT / \$100

AVAILABLE AT LUMOBODYTECH.COM

You can probably guess why so many people have posture that causes back pain: "We simply forget" to stop slouching, says Monisha Perkash, whose company, Lumo BodyTech, created the ultimate reminder. Once users clip the Lumo Lift, a chiplike gadget about the size of a thumb, onto their shirt, **it analyzes neck and spinal positions and vibrates when they're less than ideal.** Although the system isn't perfect—it can buzz when you lean for necessary reasons, like taking a phone call—it has exceeded internal sales goals. Half of its users are women, which is impressive given that early adopters for gadgets often tilt male.



THE TABLET THAT REPLACES LAPTOPS

MICROSOFT SURFACE PRO 3 / \$799

AVAILABLE AT MICROSOFT.COM

Microsoft's latest "hybrid" bundles the power of a laptop into a svelte 12-in. tablet and can run desktop apps like Word, Excel and PowerPoint. That, as well as a slim, detachable keyboard cover and a built-in stand that makes the Surface usable on a desk, makes it more suitable than other tablets for professionals like doctors and businesspeople. No wonder organizations such as Coca-Cola and Seattle's Children's Hospital have adopted it in droves.



THE CAR THAT MAKES ELECTRIC ENTICING

BMW i3 / \$41,350

AVAILABLE AT BMW DEALERSHIPS NATIONWIDE

For the most part, electric cars have been slow, sexless and stolid to drive—or stunningly expensive. So when BMW, the self-described maker of “the ultimate driving machine,” announced it would start selling them, it had a high bar to clear. The i3 delivers. In addition to getting 70 to 110 miles (113 to 177 km) on a single three-hour charge, **its novel design allows drivers to use a single pedal to both accelerate and brake** (press down to go, ease up to stop), which results in more energy-efficient driving. And because so-called range anxiety—the fear of running out of juice on the road—remains a top reason people don’t buy electric, BMW is pioneering ways to ease customers’ doubts. Among them: an optional backup gas motor that can recharge its batteries in a pinch and a program that lends owners a gas-powered vehicle for longer trips.

THE RING THAT ALERTS YOU IN STYLE

RINGLY / \$195+

AVAILABLE AT RINGLY.COM

Like many professional women, Christina Merando keeps her smartphone in her purse, which meant she was constantly digging it out to check for important notifications. But what if she could get that info from something she was already wearing, much as pants-wearing men can feel a phone buzz in their pocket? That’s the thinking behind Ringly, a line of rings that can be programmed to glow when wearers get an email from their boss, a text from their Uber driver or any number of other can’t-miss communications. Mer-



cando, a former product and design manager at eBay, raised more than \$1 million to realize her vision. So far, the concept is working: the first 1,000 Ringly rings, which debuted in June, sold out within 24 hours.



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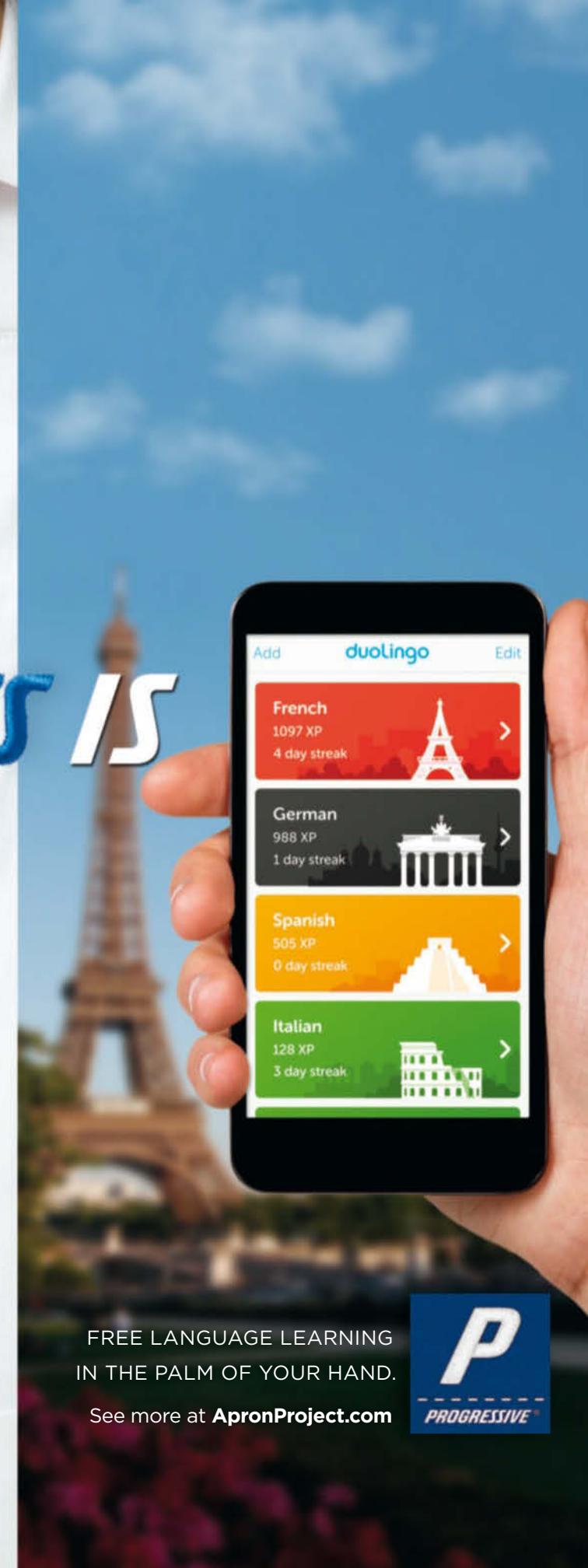
that's positivenergy



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FOR

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THE BEST
INVENTIONS
MAKING
THE WORLD
BETTER

PillPack, which launched in February, is licensed to ship to 41 states (plus Washington, D.C.) and accepts most major health-insurance plans



THE PILL BOX THAT GETS PERSONAL

PILLPACK / PRICES VARY /
AVAILABLE AT PILLPACK.COM

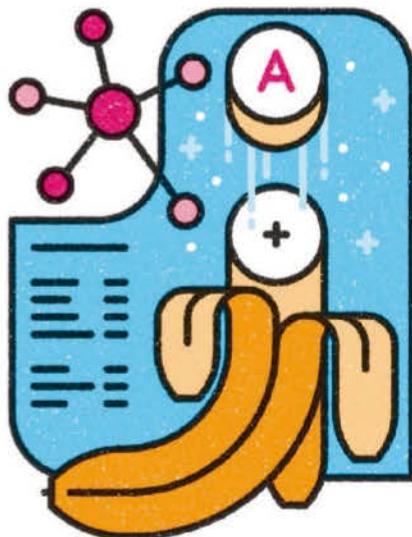
"I grew up in a family that owned and operated a pharmacy," says T.J. Parker, who knows firsthand how confusing it can be for people to track which meds to take when, especially if they fill multiple prescriptions. That's why the e-pharmacy he runs now, PillPack, doesn't traffic in bottles. Instead, every two weeks, patients are sent a

dispenser, which has their medication—all of it—sorted into a ticker tape of tearable packets, organized by date and time. For now, service is limited to patients with multiple prescriptions. But Parker's ultimate goal is to make the pharmacy experience simpler for everyone, even patients on short-term antibiotics.

BANANAS THAT PREVENT BLINDNESS

"SUPERBANANAS" / DEVELOPED BY THE QUEENSLAND UNIVERSITY OF TECHNOLOGY

In sub-Saharan Africa, up to 30% of kids under age 5 are at risk of going blind—among other conditions—for one simple reason: they don’t get enough eye-nurturing vitamin A. But **what if the bananas that make up a lot of their diet could be re-engineered to deliver it?** That’s the idea that struck Australian biogeneticist James Dale when he visited Uganda in the early 2000s. With backing from the Bill & Melinda Gates Foundation, Dale and his team began developing a vitamin-A-enriched “superbanana”; human trials start soon in the U.S. In Africa, they will be introduced using what Dale calls a “reverse Ponzi scheme” to spark adoption. Village leaders will be given 10 free superbanana plants to grow, on the condition that they give at least 20 new shoots to other villagers, who will do the same. “These bananas could potentially solve” a major health problem, Dale says.



THE WHEEL THAT GIVES BIKERS A BOOST

COPENHAGEN WHEEL / \$799

PREORDER AT
SUPERPEDESTRIAN.COM
(TO SHIP SPRING 2015)

We know that biking is good for us and good for the environment. But getting around on a bicycle can seem daunting, especially in a large city with a hilly terrain. To lessen that burden, Cambridge, Mass.–based Superpedestrian has developed the Copenhagen Wheel, a standard-size wheel—it can be attached to the back of most bicycles—that boasts a rechargeable, battery-powered motor. Depending on rider preferences, entered through a smartphone app, the motor can kick in power throughout the ride or just on hills. **Sensors also**



track road conditions, air temperature and potholes, so cyclists can share real-time information about best routes. "Cities are reaching a limit in terms of how many more cars they can accept," says Assaf Biderman, founder and CEO of Superpedestrian; indeed, studies like those from the University of Michigan Transportation Research Institute suggest that the U.S. has reached "peak car." The Copenhagen Wheel, which has raised more than \$6 million through crowdfunding, may help make cycling a more viable alternative.

Photograph by Tara Johnson for TIME

WHAT'S NEXT FOR...
HEALTH CARE

MOLECULAR X-RAYS



IN 10 YEARS, DOCTORS WILL BE ABLE TO TAKE AN IMAGE OF YOU AT THE MOLECULAR LEVEL, GAINING A BETTER IDEA OF YOUR GENETIC MAKEUP. "THAT WILL HELP US REALLY FIND THE CANCERS AS EARLY AS POSSIBLE AND IMPROVE SURVIVAL."

—DR. SARAH M. FRIEDEWALD,
3-D MAMMOGRAPHY EXPERT



THE SEAMLESS SIGN-LANGUAGE TRANSLATOR

MOTIONSAVVY UNI / \$198+
PREORDER AT MOTIONSAVVY.COM
(TO SHIP FALL 2015)

For the millions of deaf people who cannot speak, everyday communication often requires costly human translators and tedious note writing. Enter the Uni, a tablet and attachment that **leverages motion-sensing cameras and voice recognition** to translate American Sign Language into spoken words—and spoken words into text—in real time. "The need for this is so great," writes Ryan Hait-Campbell, CEO of San Francisco-based MotionSavvy, who is deaf. Roughly 200 Indiegogo backers agree: the company has raised more than \$20,000 to date.



THE FILTER THAT FIGHTS EBOLA

HEMOPURIFIER / DEVELOPED BY AETHLON MEDICAL

What makes the Ebola virus so frightening is its speed. In a matter of days, it can pump out enough copies of itself to overtake the immune system. But the Hemopurifier, a specially designed cartridge that attaches to a dialysis machine, can tip the balance back in the body's favor: **its lectin filter attracts Ebola viruses and sucks them from the blood** as it flows through. It's been used only once, on a patient in Germany, but it did the trick—effectively curing his Ebola infection. In the future, doctors hope similar tech could be used on viruses like hepatitis.



THE AC THAT LOWERS YOUR ENERGY BILLS

QUIRKY + GE AROS / \$279

AVAILABLE AT QUIRKY.COM

AMERICANS SPEND MORE THAN \$11 BILLION EACH YEAR TO blast their homes with air-conditioning, releasing 100 million tons of carbon dioxide into the air. Experts say a sizable portion of that is waste. IT consultant Garthen Leslie realized as much while driving to work last summer in Washington, past rows of empty-looking houses with humming window units that could not be turned on or off remotely. There had to be a better way. "So I sent an idea to Quirky," he says, referring to the GE-backed site that turns people's concepts into creations. Four months later, they had a prototype.

The Aros air conditioner, which has sold nearly 50,000 units since its May 2014 release, is a provocative departure from the familiar window unit. For one thing, it's elegant, with a sleek white exterior that's almost Apple-esque. It's smart too. Thanks to a companion mobile app, **Aros can track owners' movements via GPS and turn itself on and off depending on their proximity to home.** It also tells people exactly how much money they're spending to cool their residences. That's how Quirky knows it's working: so far, the company says, Aros owners who use the "smart away" feature that turns the unit on and off automatically have trimmed their energy use by nearly 10%.



THE PRISON ROOM THAT HELPS INMATES RELAX

"BLUE ROOM" / DEVELOPED BY SNAKE RIVER CORRECTIONAL INSTITUTION IN OREGON

For 23 hours a day, the 200 inmates in solitary confinement at Oregon's largest prison see nothing but a tiny, white-walled cell—an experience some research suggests can heighten mental illness and make prisoners prone to suicide attempts and violence. Last year, officials began letting some of them spend their free hour in a first-of-its-kind "blue room," an exercise space

where a projector plays video of open deserts, streaming waterfalls and other outdoor scenes. That imagery, says creator Nalini Nadkarni, who studies how nature affects behavior, is designed to **calm prisoners, "much in the way we walk through a park" to relax.** Inmates have responded so well that guards now use blue-room time as a way to pre-empt bad behavior.

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THE BEST
INVENTIONS
CHANGING HOW
WE UNWIND



THE TABLET TOY THAT GETS PHYSICAL

OSMO / \$79

AVAILABLE AT PLAYOSMO.COM

Like many kids, Pramod Sharma's daughter loves the iPad. But "when her face is glued to the screen, six inches away, all day long—I wasn't too happy," he says. (Studies have shown that too much screen time can lead to attention problems and obesity.) So the ex-Google engineer and his former colleague, Jérôme Scholler, devised a way to bring virtual play back into the real world. Osmo's "reflective AI" attachment en-

ables the iPad camera to interpret physical objects—allowing kids to mimic an onscreen pattern with colored tiles, for example, and get rewarded for doing it correctly (while also refining their motor skills). The toy, which debuted in October, has helped Osmo raise \$14.5 million in capital and is now being sold in the Apple Store. "Many kids can play at once," says Sharma, "so it becomes more interactive and imaginative."



More than
2,000 U.S.
schools are
using Osmo's
technology



"SELFIE STICK" / \$33
AVAILABLE AT PROMASTER.COM

Users take photos by pressing a button at the base, allowing the angling benefits of extra-long arm reach

SELFIE BRUSH
\$20 / AVAILABLE AT THEWETBRUSH.COM

Works like a normal hairbrush ... that also helps position a phone



THE SELFIE STREAMLINERS

IF 2013 WAS THE YEAR IN WHICH *SELFIE* BECAME A buzzword, then 2014 was the year selfies became a cultural phenomenon. Look no further than a recent Pew report, which found that at least **a quarter of Americans have shared a selfie on a social-networking site** (including Ellen Degeneres, Kim Kardashian and President Obama).

Sensing a new market, several companies have launched devices designed to streamline the selfie-taking experience. Many of them, like a hairbrush that holds your smartphone, are more goofy than game changing. But the selfie stick (produced by multiple brands), which enables users to position their smartphone beyond arms' reach to get better photo angles, "adds genuine value," says Van Baker, a mobile tech analyst at the research firm Gartner. "I've seen a lot of people using it."



WHAT'S NEXT FOR ...

ENTERTAINMENT

IMMERSIVE VIRTUAL REALITY



“IMAGINE BEING DROPPED INTO HISTORY ON THE TITANIC. YOU WAKE UP, AND A BUTLER BRINGS YOU TO THE MEZZANINE, AND YOU DISCOVER SLOWLY AS THE EXPERIENCE PROGRESSES WHAT SHIP YOU'RE ON. THAT WOULD BE AN INCREDIBLE PRODUCT.”

—ALEX KLEIN,
INVENTOR OF KANO, A CODING KIT FOR KIDS



THE COACHING BASKETBALL

94FIFTY SMART SENSOR / \$200

AVAILABLE AT 94FIFTY.COM

In sports training, as in business, there's no more valuable asset than data. That's why hoops pros use high-tech equipment to monitor everything from passing patterns to fatigue levels. This basketball aims to re-create those perks for casual players. It comes embedded with nine sensors and a **Bluetooth chip** that sends performance data to a mobile app—allowing players to measure, say, the arc of their jumpshot. If something's off during game play, the voice of a coach (via the app) can even implore you to “go faster” or “snap your wrist.” “We get excited when we see someone improve,” says Michael Crowley, whose company, InfoMotion Sports Technologies Inc., makes the 94Fifty Smart Sensor. And apparently, that's happening a lot: Crowley says InfoMotion has sold close to 100,000 balls.

WRAPPERS YOU CAN EAT

WIKIPEARLS / \$4 FOR A PACK OF TWO

AVAILABLE AT SELECT WHOLE FOODS

“Edible wrapper” sounds like an oxymoron—unless you're WikiFoods CEO David Edwards, who has devised a way to encase yogurt, cheese, ice cream and more in shells strong enough to hold their shape (in water, heat and cold) until you take your first bite. The secret lies in science: **Each shell is made of particles of dried fruit or other natural substances** that are tiny enough to be electrically attracted to one another; they are combined with calcium and sugar to strengthen the form. Though the frozen-yogurt Pearls—the first WikiFoods product to reach mainstream stores, thanks to deals with Stonyfield and Whole Foods—are still packaged in old-fashioned bags of two, Edwards' ultimate goal is to sell them à la carte, like apples or peanuts, in an effort to reduce the world's packaging waste.





ACTION FIGURES THAT EMPOWER GIRLS

IAMELEMENTAL / \$65 FOR A SET OF 7

AVAILABLE AT IAmElemental.com

Studies have shown that girls' career ambitions can be heavily influenced by their playthings. But when moms Dawn Nadeau and Julie Kerwin started searching for female action figures that were athletic and empowering—as opposed to dolls like Barbie, most of which cannot even bend their limbs—they were dismayed to find ... none. (Well, aside from “hypersexualized figures for adult male collectors,” says Nadeau.) So using funds they raised on Kickstarter—\$162,906 to be exact, more than quadruple their goal—they designed and commissioned a firm to build their IAmElemental series of action figures, meant to portray women as heroes with strong personalities. Each figure embodies a different “element” of heroism, like persistence or honesty. “The idea that girls could save the world—that’s a very powerful fantasy,” says Nadeau.

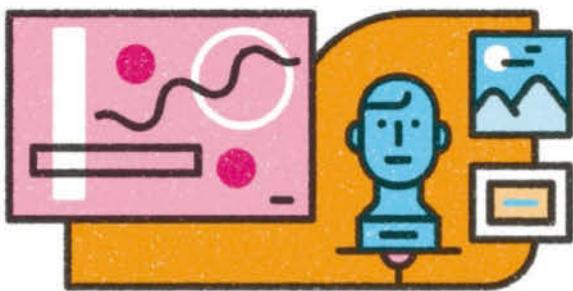
SCREENS THAT SHOWCASE DIGITAL ART

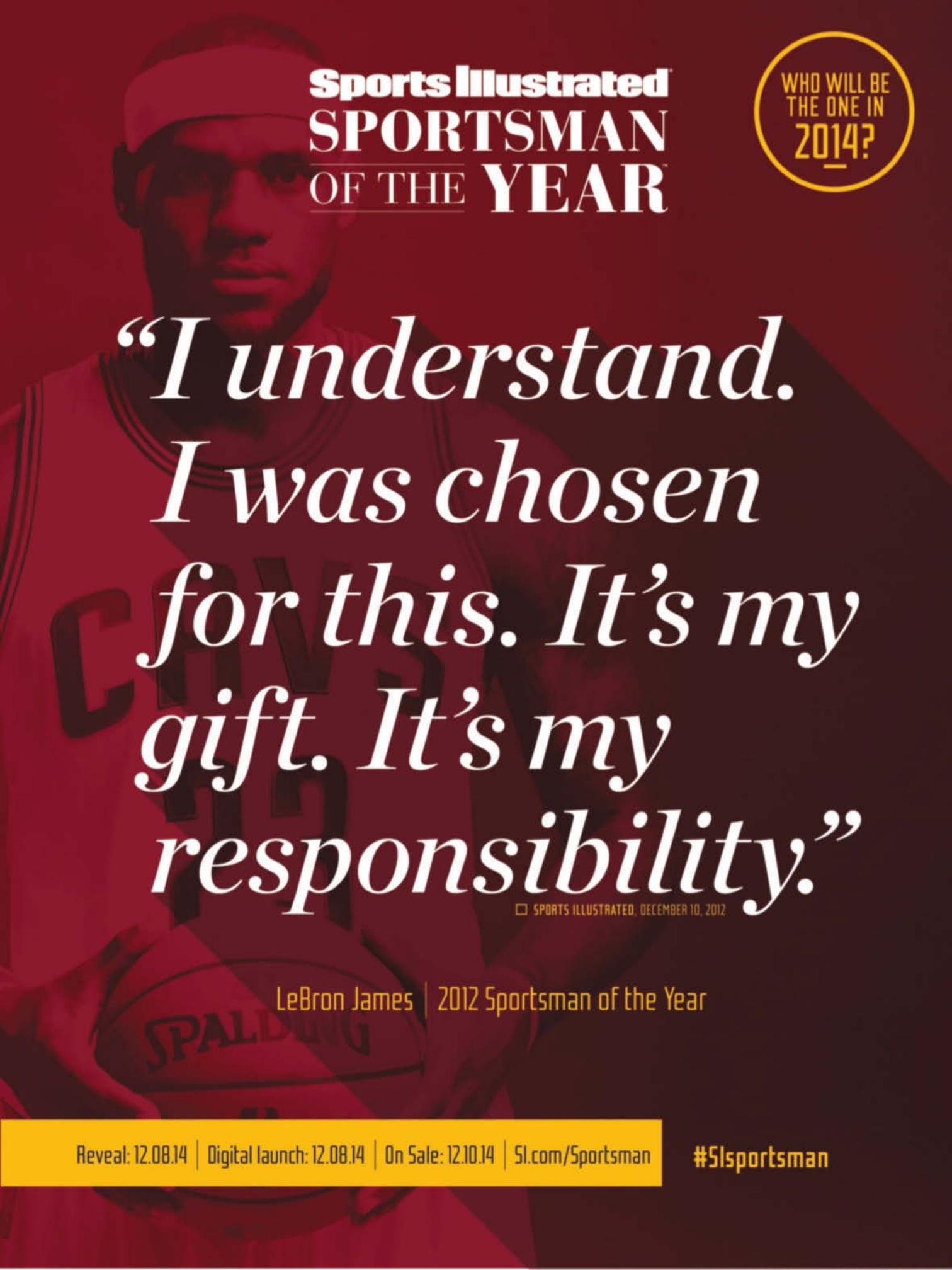
ELECTRIC OBJECTS / \$399 PER FRAME

PREORDER AT ELECTRICOBJECTS.COM

“There are so many artists” making beautiful works on and for computers, says digital artist Jake Levine, referencing the burgeoning Tumblr community (among others). But putting that art on physical walls has been nearly impossible. Levine’s Electric Objects, which has raised more than \$3 million in funding, aims to change that. The sleek,

22-by-13-in. flatscreens are wired specifically to display art. Their brightness dims in tandem with sunlight, and their matte finish blocks glare so they resemble actual paintings. And a companion smartphone app lets users switch what is displayed on a whim—eventually, Levine hopes, from a marketplace full of digital artwork.



A black and white photograph of LeBron James, wearing a basketball jersey and cap, looking intensely at the camera. The background is dark and blurred.

Sports Illustrated SPORTSMAN OF THE YEAR

WHO WILL BE
THE ONE IN
2014?

*“I understand.
I was chosen
for this. It’s my
gift. It’s my
responsibility.”*

□ SPORTS ILLUSTRATED, DECEMBER 10, 2012

LeBron James | 2012 Sportsman of the Year

Reveal: 12.08.14 | Digital launch: 12.08.14 | On Sale: 12.10.14 | SI.com/Sportsman

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HOLIDAY MOVIE PREVIEW

HOLLYWOOD'S SEASON OF AMBITION

*Angelina Jolie, page 104 / Ava DuVernay, page 106 / Anna Kendrick, page 107 / Bradley Cooper, page 108
Randall Park, page 111 / Chris Rock, page 112*

The biggest star in her own movie

*Angelina Jolie, photographed in
Los Angeles. Unbroken is the second
film she has directed*

Photograph by Paola Kudacki for TIME



THE LADY AND THE SCAMP. ANGELINA JOLIE FINDS HER EQUAL

How the actor turned director fell for Louis Zamperini, a gutsy survivor with just the kind of unbelievable story she wanted to tell

By LEV GROSSMAN/LOS ANGELES

THE HARD PART ABOUT MAKING A MOVIE from Louis Zamperini's life story is that his life was barely plausible enough to be a movie in the first place. Zamperini was born in 1917, the delinquent child of Italian immigrants, and grew up to become a track star: he made the U.S. Olympic team when he was only 19. When World War II broke out, he became a bombardier in the Pacific theater. In 1943, his plane went down in the ocean.

Zamperini drifted in an open boat for 47 days, subsisting on rainwater and raw fish before washing up on the Marshall Islands. He spent the next two years in brutal Japanese prisoner-of-war camps, where he was singled out for persecution by a sadistic Japanese officer. He barely survived, but through it all he never lost hope, and his life is a monument to the human ability to endure and persevere.

Hollywood has been toying with Zamperini's story for more than 50 years—Tony Curtis was going to play him in 1956 but made *Spartacus* instead. Now on Dec. 25, *Unbroken* arrives in theaters, starring a little-known English actor named Jack O'Connell as Zamperini. Its director is better-known, though not for being a director: she's Angelina Jolie.

Jolie's life is in some ways only a little more plausible than Zamperini's. She's

gone from a B-movie actress to an Oscar winner to one of Hollywood's priciest stars. (She topped *Forbes'* list in 2009, 2011 and 2013.) In the '90s her turbulent personal life made her a staple of the tabloids; now she's a devoted wife (to Brad Pitt) and mother (to six kids, three biological, three adopted). She's also a leading humanitarian—two years ago she was made a special envoy for the U.N. High Commissioner for Refugees—and last year she revealed in the *New York Times* that she'd had a preventive double mastectomy. Now she's a director; *Unbroken* is her second film.

Based on all that, you would expect Jolie to be a dervish of manic energy, but in person she's calm and still. She doesn't fidget. She looks very much as she does on camera, with large eyes and full lips and *Maleficent* cheekbones. Zamperini's story is one of suffering, but Jolie was drawn to its uplifting core. "Traveling with the U.N., there's so much that can feel so overwhelming and so negative," she says. "And then to have an example like Louis, who was this little Italian immigrant troublemaker who didn't think he was worth anything—I needed it. I needed something positive to get me through all the things that keep me up at night."



For somebody who's spent so much of her life in front of cameras, Jolie seems pretty relieved to get into the director's chair. "I don't want to be that person in the spotlight," she says. "I'm much more at home sitting with the sound guys and the grips, in my boots, working." In fact she has a kind of nerdy affinity for the nuts and bolts of filmmaking—she lights up when she talks about those aspects. Laura Hillenbrand, who wrote the hugely best-selling biography on which the film is based, recalls Jolie asking her to figure out what color uniform a high school track-and-field team would have worn in 1935. "My heart soared at the question," Hillenbrand says. "It's easy to fudge things. It's hard to be devoted to doing things right. She's taken the hard path."



Jolie's background also gives her a special feel for her actors: she sees her set as a protective bubble, free of distraction, where emotion can safely come out. "In terms of the configurations, scheduling, admin, all that boring stuff, she really kept that separate," says O'Connell. "I only recall on set one conversation that wasn't relevant to what we were doing there, and that was my fault. I started asking her about the Beatles, if she'd met them. And it turns out she had."

On occasion, Jolie had to balance her protective instinct with her obsession over detail. For the scenes at the 1936 Olympics, she made the cast wear old-fashioned running shoes. "The shoes exercise a different muscle, and their legs were cramping," she says. "The mother in me would say, 'Let's

*'THE MOTHER
IN ME WOULD
SAY, "LET'S GO
HOME—LET'S
CALL IT." I HAD
TO BE THE
DIRECTOR AND
SAY, "FIVE MORE
TIMES!"'*

—Angelina Jolie

The old man and the she Jolie with Zamperini, who died in July at 97, six decades after his story was first slated to be a film. O'Connell, below, depicts one of Zamperini's track wins



go home—let's call it.' I had to be the director and say, 'Five more times!'"

Zamperini died this past July, at 97, but Jolie spent enough time with him to form a deep bond: his children, Luke Zamperini and Cynthia Garris, describe Jolie and Pitt as honorary Zamperinis. She showed a cut of the film to the man himself in the hospital on her laptop. "If it was only for this moment, I was happy I made the film," Jolie says. "It was one of the most profound moments of my life. I brought it thinking he would have some critique on filmmaking. It was just a man watching his life and remembering his friends. It was beautiful."

She has already gotten her most important review, but Jolie shows no signs of resting on her laurels. Since *Unbroken* wrapped, she married Pitt—after seven years together—and she has already shot another film, *By the Sea*, which she wrote and co-starred in with her new husband. "We just finished it about a week ago, this little independent movie about grief and marriage and life," she says. "Brad and I did it together—on our honeymoon, we played a very unhappily married couple."

Unbroken is a biopic, but there is a small undercurrent of autobiography in it. Like Zamperini, Jolie had a wayward youth, and like him she found her career, purpose and place in life. "I think I do connect to people who could be written off as wild or dark, or who are just full of fire and looking for a place to put that fire," she says. "It's an important lesson to learn, and it's something I did learn: you live on behalf of others and you're happier and you have purpose. And you have a great excuse to have all that fire." ■



DREAM WORKER

Ava DuVernay brings *Selma* to the screen

"I'm not a fan of historical drama," says Ava DuVernay, the director of *Selma*. "I'm a filmmaker who's made a historical drama, and these are the last kind of movies I watch."

Perhaps that's why *Selma*, which tells the story of the 1965 voting-rights marches organized by Martin Luther King Jr. in Alabama, differs from the rushed cradle-to-grave biopics that audiences have come to expect at this time of year. It goes deep, patiently relating the events of just a few weeks. Nor is DuVernay's film a deification of the sort she calls "supermarket-like, when everything's so brightly lit." Her version of King, played by *The Butler* standout David Oyelowo (above, with costar Carmen Ejogo), is startlingly human. "We need to get past the idea that anyone was a saint," she says. "We're not doing a sainted version of him—or an over-corrected antihero version of him."

If anyone knows what's behind an image, it's a director who spent years shaping the public's opinion of stars. DuVernay ran movie PR campaigns for years before self-financing her debut drama, 2011's *I Will Follow*. One year later, she won Best Director at Sundance with *Middle of Nowhere*; a year after that, she was tapped for *Selma* by producers Brad Pitt and Oprah Winfrey.

Despite the responsibility, she was hardly nervous. After all, her family is from the Alabama county connecting Selma and Montgomery, making a story that has become modern myth all the easier for her to access. "I never approached it as, 'Oh my God, I'm making a film about Dr. King,'" she says. "I just focused on making a film about an ordinary man doing extraordinary things in a place I know very well." —DANIEL D'ADDARIO

PRESTIGE PICS

Movies destined to shine during awards season

THE IMITATION GAME**NOV. 28**

Benedict Cumberbatch is a certain Best Actor candidate for his role as Alan Turing, the man who helped win World War II by cracking the Germans' Enigma machine.

WILD**DEC. 5**

Reese Witherspoon produced and stars in this adaptation of the Cheryl Strayed memoir about climbing your way to enlightenment. Her gutsy, earthy performance is a far cry from Tracy Flick or Elle Woods.

STILL ALICE**DEC. 5**

Julianne Moore is spectacular as a university professor who is slowly succumbing to the ravages of Alzheimer's disease.

INHERENT VICE**DEC. 12**

Director Paul Thomas Anderson returns to the '70s (à la *Boogie Nights*) with this drug-fueled

MOVIE
CALENDAR

detective story based on a Thomas Pynchon novel and starring Joaquin Phoenix.

THE GAMBLER**DEC. 19**

Mark Wahlberg lost 60 lb. to star in director Rupert Wyatt's drama about a literary professor with a gambling addiction.

MR. TURNER**DEC. 19**

Veteran character actor Timothy Spall delivers a raucous performance as grumpy British painter J.M.W. Turner in Mike Leigh's biopic.

WINTER SLEEP**DEC. 19**

In this acclaimed Turkish drama—the country's official entry into the Best Foreign Picture category—a brother and



sister are snowed in by an Anatolian blizzard. Unable to leave their cabin, family tensions flare.

**TWO DAYS,
ONE NIGHT****DEC. 24**

Belgium's Oscar submission stars Marion Cotillard as a woman who must persuade her struggling co-workers to give up extra pay so that she can keep her

Phoenix is a pothead private investigator and Josh Brolin his straitlaced police-detective nemesis in *Inherent Vice*



Spall as the British master of maritime sunsets in *Mr. Turner*



job after suffering a nervous breakdown.

UNBROKEN **DEC. 25**

Angelina Jolie makes a huge leap forward as a director in this true-life story of Louis Zamperini (Jack O'Connell), an Olympian and World War II vet who survived the crash of his B-24 bomber, 47 days adrift at sea and two years in Japanese POW camps.

AMERICAN SNIPER **DEC. 25**

Directed by Clint Eastwood, Bradley Cooper is at his best as Chris Kyle, the Navy SEAL with 160 confirmed kills but a conflicted family life that suffers as his taste for combat in Iraq becomes insatiable.

INTO THE WOODS

DEC. 25

Rob Marshall's adaptation of the Broadway smash stars Meryl Streep, Emily Blunt, Johnny Depp and Anna Kendrick in a mashup of the most-beloved fairy tales.

SELMA **DEC. 25**

An epic depiction of the civil rights march on the Alabama city, the film stars relative newcomer David Oyelowo as Martin Luther King Jr., Tim Roth as George Wallace and Tom Wilkinson as LBJ.

A MOST VIOLENT YEAR

DEC. 31

Jessica Chastain and Oscar Isaac star in this gripping New York crime drama set in the 1980s.

LEVIATHAN

DEC. 31

Russia's entry in the Best Foreign Film Oscar race focuses on small-town politics and one family's fight against a corrupt mayor trying to steal their land.

Witherspoon treks into an adventure of self-discovery in *Wild*



A TOMBOY WHO BECAME A PRINCESS

Anna Kendrick on Into the Woods' bold Cinderella

Anna Kendrick never fantasized about playing a princess. "As a kid I would dream about saving boys from cliffs—not the other way around," she says. But her take on Cinderella in *Into the Woods*, out Dec. 25, is no damsel in distress, and the film is no fantasy. The Stephen Sondheim musical is filled with infidelity and violence. "When I first saw it as a kid, it made me uncomfortable," she says. "But that's what makes it so compelling—the characters have to face consequences."

Kendrick has a history with musicals. She earned a Tony nomination at 12 for her performance in *High Society* and starred in 2012's *Pitch Perfect*, a movie about an a cappella group. She'll be singing next year in both the *Pitch Perfect* sequel and

the film version of the musical *The Last 5 Years*.

"It occurred to me that doing four musicals was maybe not a great career plan, but when certain opportunities come along, you throw the rules out the window," she says. One such opportunity was working with Meryl Streep in the Disney-produced *Into the Woods*. "She has this incredible talent of making you forget how totally intimidating she is."

Though Kendrick is technically a Disney princess now, she's not squeaky clean. Her funny tweets on topics like her post-Oscars hangover are far from PG. "My brother showed me *Pulp Fiction* at 11, and I turned out O.K.," she says, laughing. "I think my followers can handle it."

—ELIANA DOCKTERMAN

WHEN THE HERO DIES AT THE END

Inspired by heroism and tragedy, Bradley Cooper offers a riveting portrayal of a Navy SEAL in *American Sniper*

By ISAAC GUZMÁN

READ THE OPENING CHAPTERS OF CHRIS Kyle's memoir *American Sniper* and the unvarnished experience of a Navy SEAL might leave you speechless. He never acclimates to the "stench" of Iraq, considers enemies "savages" and wishes he had shot more than the 160 insurgents he's credited with killing during four tours of duty—because he would have saved more American lives. Kyle thinks in black and white, and he is proud that his love of country and family is equaled by the hate he feels for the enemy. If it hadn't been for his wife and two children, Kyle would have gone back for more action, because protecting SEALs, Marines and soldiers was fun—even, he writes, "the time of my life."

Oohrah! Isn't that the quintessential outlook of the American fighting man, delivered with a swagger worthy of one nicknamed "the Legend" for his unmatched lethality? If Hollywood had adapted Kyle's book 60 years ago, it might have starred an unapologetic John Wayne, who would notch kills into his rifle stock, then return home to a ticker-tape parade and picture-perfect family.

But Bradley Cooper and the filmmakers behind *American Sniper*, out Dec. 25, channeled Kyle's provocative stance into a larger truth. In the finest role of his

career, Cooper plays Kyle as a man torn between duty, family and a seemingly unending war that is killing him not with bullets, RPGs or IEDs—though plenty do their best to find him—but with the grinding, dehumanizing stress of being death's constant courier. His portrayal is all the more poignant given

"THIS IS A CHARACTER STUDY MORE THAN A WAR MOVIE. I REALLY GOT TO IMMERSE MYSELF IN CHRIS KYLE AND HOW HE SAW THINGS, HOW HE TALKED, HOW HE THOUGHT."

—Bradley Cooper

that Kyle didn't survive to see himself on the big screen.

A Character Amid Carnage

IN 2012, COOPER'S NEW PRODUCTION company joined with Warner Bros. to buy screenwriter Jason Dean Hall's adaptation of Kyle's memoir. Cooper called Kyle on the phone and the two men spoke briefly, but the actor didn't recognize the tough-as-nails narrator who propelled the book onto the *New York Times* best-seller list for over 30 straight weeks. "He was complicated," Cooper tells TIME. "He might have written that stuff in his book, but he also saw the gray areas. He had to fight to get things right with his family and his wife Taya, because he didn't want to be like the 90% of SEALs who wind up divorced." After spending time with Taya, Kyle's parents and his friends, Cooper came to see the ex-sniper as a charismatic Texan with a preternatural calmness that inspired warmth in those around him.

Aside from Kyle's terrifying accomplishments as a sniper, what sets his autobiography apart is that he turns a good chunk of it over to Taya, who describes how the war changed her husband and their family life irrevocably. So Cooper's *American Sniper* depicts two fronts: one in Iraq, the other back home. Like 2008's *The Hurt Locker*, it is a soldier's movie—one that documents the personal toll of conflict without questioning whether the war itself was worth all the carnage.

"It's really a character study more than a war movie," says Cooper, who as a producer initially wanted Chris Pratt to play Kyle. "I really got to immerse myself in Chris and how he saw things, how he talked, how he thought. His family really opened up everything to me. There were hours and hours of interviews and videos they had of him. He had this really specific Texas accent, and it would change depending on who he was talking to."

Cooper grew to love that voice, so much so that when Cooper slipped into Kyle's twang on set, he kept it going for three straight months without breaking. "It wasn't that I was in character for the whole time," he explains. "It just made it easier to be in that register all the time. I found myself on the phone or just going about my life talking like Chris."

Studying the art of war Cooper gained 40-plus pounds of muscle, trained with a Navy sniper and studied hours of interviews to play Kyle



Still, Kyle's father Wayne had a niggling doubt about Cooper. "You do realize that my son was about twice your size," he said. Cooper's response: "I'm going to work on that." And he did. It's not just a grizzled beard that transforms the actor—it's also his neck, which is monstrous after growing three collar sizes, thanks to a regimen of hourly meals and constant workouts that added 40-plus pounds of bulk to the actor's frame.

His portrayal impressed the one person most likely see any cracks in the facade: Taya Kyle. "It's surreal," she says. "It's not just Bradley playing Chris—it's Chris, honest to God. He spoke like Chris, he worked out to Chris' workout music, he got the way he walked, he got inside of his heart and soul."

Such transformations are the stuff of Oscar legend, and if there will ever be a season in which the handsome dude from *The Hangover* franchise is going to be taken seriously, it's this one. On Broadway, Cooper's portrayal of John Merrick in a production of *The Elephant Man*—a role that requires complete physical immersion, without the aid of prosthetics, into a character afflicted by a disfiguring disease—is setting box-office records at the Booth Theatre. He's been lauded by the Academy before: he earned Oscar nominations for Best Actor in *Silver Linings Playbook*, in which he played a bipolar man who finds a muse in Jennifer Lawrence, and Best Supporting Actor in *American Hustle*, in which he portrayed an aggressive, highly emotional cop. But those performances, both directed by David O. Russell, had strong comic elements, and *American Sniper* is deadly serious.

Russell was Cooper's first choice to direct *Sniper*; he says they discussed the film while wrapping production on *American Hustle*. Then Steven Spielberg signed on, but he reportedly had a grander vision of the film and couldn't come to terms with the studio. Finally, they found a director who knew a thing or two about both making and acting in war movies: Clint Eastwood. The venerable filmmaker has a number of straight-up combat films to his name, including *Firefox*, *Heartbreak Ridge* and *Flags of Our Fathers*. But he has consistently done his best work when grappling with big themes—

The Devil of Ramadi Cooper as Kyle in full battle mode; the sniper had 160 confirmed kills in Iraq, a military record

murder, guilt, mercy, forgiveness—in movies like *Unforgiven*, *Million Dollar Baby* and *Mystic River*. *American Sniper* neatly connects those two sides of Eastwood's repertoire.

"I guess you could call it a war film, because it's about the war," Eastwood says. "But really it's about relationships and the obstacles people have to overcome when they're involved in the service."

Cooper was thrilled to have Eastwood on set, especially when he needed to deliver lines like, "I would lay down my life for my country"—something Kyle was never shy of saying—and not have them register as clichés or propaganda. With Eastwood behind the camera, *Sniper* elegantly depicts Kyle's shift from loving husband and unabashed patriot to a shadowy figure who hides from his wife and is startled by the sound of a lawn mower or the rambunctious play of a boy and his dog. Eastwood pays Cooper his highest compliment, saying, "I never once caught him acting in the picture, which I loved. He embodied the part."

A Good Deed Is Punished

BY THE TIME EASTWOOD ARRIVED IN THE fall of 2013, a huge shift in the story had taken place. To overcome symptoms of PTSD after leaving the Navy in 2009, Kyle

set out to help other veterans struggling to adapt to life at home. With his outsize reputation and knowledge of sharpshooting, he started a nonprofit that engaged vets in the finer points of riflery and gave them a chance to learn that even a decorated, celebrated tough guy like Kyle had trouble reconnecting with those he cared about after spending so much time on ultra-high alert in combat zones.

On Feb. 2, 2013, Kyle and a friend took a veteran named Eddie Ray Routh, 27, who had been having serious bouts of PTSD and mental illness, out for a day of target practice. Routh's mother worked at the school Kyle's children attended, and she asked if Kyle could spend some time with him. It seemed like a typical session until a shooting range employee discovered the bodies of Kyle and his friend; Routh had allegedly shot them both and made off with Kyle's pickup truck. Police arrested him that night and say he confessed to the murders. Routh has pleaded not guilty to the charges.

"When I heard that Chris had been killed, it was one of those choking moments where your brain hears the information and your body is trying to catch up with what it all means," Cooper says. Now the movie faced a new question: Should they show the horrific last moments of a man killed with the bullets of his own gun, by a fellow veteran he was trying to help?

"I gave it some strong thought," Eastwood says. "I had an ending in mind that included the shooting range, but that's not what the story is about. I didn't want to come back and do a big martyrism scene." Instead, there is simple text on a black screen after a final shot of Kyle getting into his pickup truck with Routh.

It's still chilling, more so when we see real-life video of thousands of people waving flags and banners along the highway as Kyle's hearse passes. It underscores the challenges we face in caring for the men and women who do battle on our behalf; thousands have returned not only with physical wounds but also psychic ones. Cooper wants viewers to empathize with what vets have experienced. In the film, he says, Kyle "is traversing the line from home life to being in country, and the viewer goes through that as well. So if people get a feel for the impact that has on a human, if anybody can have a little bit more of an understanding of what that does, then we've been successful." ■



SPECTACLES

Action and big-budget blockbusters

THE HUNGER GAMES: MOCKINGJAY—PART 1

NOV. 21

Jennifer Lawrence returns in the franchise's penultimate episode as civil war heats up in District 13.

REACH ME

NOV. 21

Kyra Sedgwick, Tom Berenger and Sylvester Stallone star in a thriller about a mysteriously inspirational self-help book.

THE BABADOOK

NOV. 28

This Australian horror

MOVIE CALENDAR

flick, about a mother and son who come to believe they're being stalked by the character in a children's pop-up book, got raves at Sundance.

THE PYRAMID

DEC. 5

Archaeologists who find a pyramid buried

in the Egyptian desert are unlikely to meet a happy ending in this horror pic.

DEMONIC

DEC. 12

Maria Bello and Frank Grillo are a psychologist and a detective unraveling the mystery of who killed five people in search of the paranormal.

EXODUS: GODS AND KINGS

DEC. 12

Ridley Scott directs Christian Bale,

Ben Kingsley and Sigourney Weaver in an epic retelling of the Bible story featuring Moses,

Jennifer Lawrence's Katniss is ready for action in *The Hunger Games: Mockingjay—Part 1*



Ramses, 600,000 Jewish slaves and a whole bunch of plagues.

ESCOBAR: PARADISE LOST

DEC. 16

Benicio del Toro plays Colombian drug lord Pablo Escobar.

THE HOBBIT: THE BATTLE OF THE FIVE ARMIES

DEC. 17

Thirteen years after he started, Peter Jackson gives us the final chapter in his monumental Tolkien film cycle.



PLAYING THE HEAVY GETS DANGEROUS

Randall Park knew his role in *The Interview* would be tough, but he didn't expect death threats

By JOEL STEIN

RANDALL PARK PLAYS KIM JONG UN IN *THE INTERVIEW*, OUT Dec. 25, in which the CIA tasks journalists James Franco and Seth Rogen with killing the North Korean dictator. North Korea issued a statement promising a "decisive and merciless countermeasure," so TIME asked Park the obvious question.

Are you insane?

Yes. A little bit. I'm also superpsyched about being part of this movie. But yeah ...

Why did you decide to gain a lot of weight instead of wearing a fat suit? This isn't like Robert De Niro playing a boxer in *Raging Bull*. You won't get an Oscar for this.

We don't know that yet. They were going to put prosthetics on me. But they did a camera test a week before my first day of shooting, and they wanted more realism. So I had a week to put on the weight.

Rice balls?

Doughnuts.

How many doughnuts a day?

I lost count. It was doughnuts and hot dogs. I had the time of my life. I gained 7 lb. that week, and three weeks after that I got up to 15 lb.

You could never gain that much weight on Korean food, right?

No. Korean food is too healthy. It had to be American food.

That scene where you get to smash everything looked pretty fun.

I'm always surprised when producers are O.K. with me destroying a set. We only had one take. We didn't have backups.

What was worse off set: the weight or the haircut?

The haircut, for sure. I wore hats constantly. I'd be standing there sweating inside some nice warm house with this Holden Caulfield hat on.

What did your wife think of the haircut?

She was happy when the movie was done.

Did she withhold marital relations until you finished shooting?

Uh ... no. No. Of course not. I don't know why I had to think about that. She liked the Holden Caulfield hat, so it all worked out.

WILL THE REAL CHRIS ROCK PLEASE STAND UP?

In the dazzlingly funny *Top Five*, a comedian turned movie star tries to reinvent himself

By SAM LANSKY

"DON'T ASK ME ABOUT FILM STOCK OR lenses," Chris Rock says. As a filmmaker, Rock knows his limitations—he's just finished only his third movie—but still, he should be more confident. That film, *Top Five*—written, directed by and starring Rock and bankrolled by producers Scott Rudin and Barry Diller—premiered to rave reviews at the Toronto Film Festival in September. Distribution rights to the film sold for \$12.5 million, the biggest deal of the festival. An uproariously funny satire of the Hollywood hype machine inspired by Rock's own experiences and featuring an all-star cast of comedians, *Top Five* looks poised for success when it lands in theaters Dec. 12.

Perhaps Rock, 49, has learned to temper his expectations after a spotty film career. Seated in a booth at the Comedy Cellar, a Greenwich Village stand-up club, Rock clearly hopes *Top Five* is the film that has eluded him so far in his varied career as a comic and an actor. "I've made a lot of movies, but not my signature movie—something that I felt was to the level of my stand-up," he says. Writing it by himself helped. "I always wrote with other people," he says. "When you write with people, you end up with a consensus. When you

write by yourself, you have a vision."

Top Five is indeed elevated by the same freewheeling, improvisational style that's made Rock a comedy legend. The film follows a day in the life of Andre Allen, a comedic actor whose movies have never lived up to the promise of his stand-up, as he prepares

NORMALLY, I HAVE A SEPARATE STASH OF JOKES JUST FOR STAND-UPS. I DIDN'T SEPARATE THEM THIS TIME. I PUT THEM INTO PLAY.

—Chris Rock

for the release of *Uprise*, a self-serious drama about the Haitian slave rebellion. But his bid to be taken seriously is undermined by a checkered past—tabloid-grabbing antics and a history of substance abuse—and his fiancée Erica (Gabrielle Union), a vain reality star who's trying to extend her 15 minutes in the spotlight. When Andre meets Chelsea Brown (Rosario Dawson), a *New York Times* reporter who's profiling him, she hits hard with questions about his professional and personal choices. The humor is farcical, but the tone is self-reflective—Rock turning the camera on his own varied career.

Rock began thinking about *Top Five* while making his Broadway debut in 2011's *The Motherf---er With the Hat*. The warm critical reception to that play, he says, made him rethink his whole film career: "Like, 'Stop pandering! Stop worrying about this test.' That's the thing about movies over everything else—they *test*. They don't test plays. No one tests stand-up."

But making the transition from beloved comic to movie star is a fraught one, as Rock has proved with middling fare like *Head of State*, his 2003 directorial debut, and the critically derided *Grown-Ups* films. "He jokes that his previous films were all posters," Dawson says about the two-dimensional movies that Rock has made in the past.

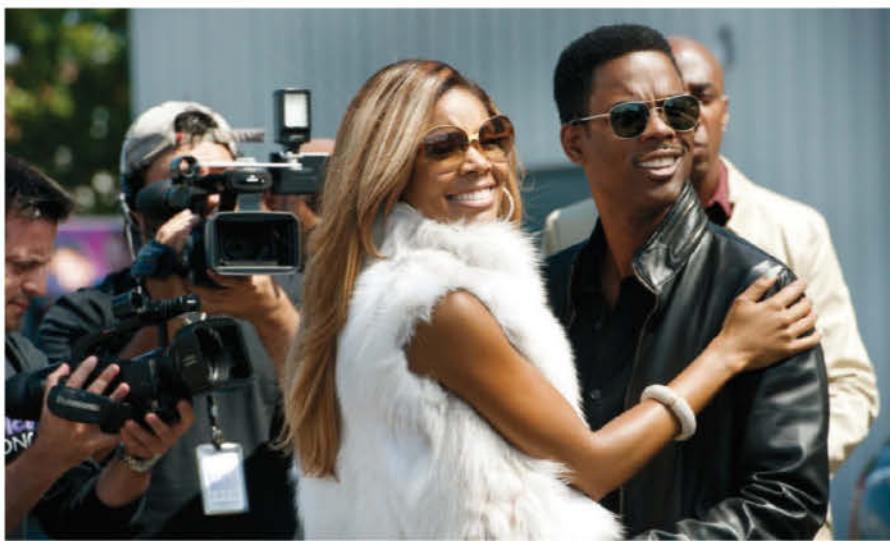
"There was this fear," Rock says. "Am I going to be able to express myself properly in this medium?" His solution was to stop writing to please moviegoers. He just tried to be as funny as possible. "Normally when I write, I have a separate stash of jokes just for stand-ups," he says. "I didn't separate them this time. I put them into play."

The result is sharper than he's ever been on film, with more pathos too. Andre is a recovering alcoholic, and his struggles with sobriety are shot through with earned pain. He can't fully trust Brown, the kind of journalist who has burned him before, even as he's tempted to open up to her completely. Andre's father hustles him for money, but he submits to being manipulated. Even the shallow Erica gets an emotional payoff as she tries to persuade Andre to continue

It's a hard Rock life The comic's new film mines both his public persona and personal history for laughs



HOLIDAY MOVIE PREVIEW



filming her reality show: "I don't have a talent," she pleads.

Some of Rock's best stand-up has been about race in America, and this theme informs *Top Five*, which features a predominantly nonwhite cast. "It's really black without talking about race," Rock says of the film. "It's black like any James Brown record is black. But everybody loves James Brown. It's no different than Chinese food. You walk into any Chinese restaurant and there's nothing American on the menu, but everybody loves it."

Though *Top Five* takes repeated pot-shots at Tyler Perry's films and Bravo's *Real Housewives of Atlanta*—entertainment that targets black viewers more narrowly than this film does—the ribbing is affectionate. "I'm from the no-demographic era, where you're supposed to make everybody laugh," Rock says. "Those things probably are just going toward a black audience. But I've had fun at Tyler Perry movies. NeNe Leakes is funny. I'm not judging her. I like all that stuff on a level."

His satire is also impressively spot-on. One gag in *Top Five* involves a fictional Tyler Perry movie called *Boo*—a horror-flick take on Perry's popular Madea character. "Tyler called me and told me he loved the movie," Rock says. "And Lionsgate wants him to make *Boo*. I would go see Madea in a haunted house. I'd be like, 'O.K., this is \$2 bucks. How bad can this be?'"

Though Perry isn't in the film, the cast does include a jaw-dropping list of comedians in parts both big and small—Whoopi Goldberg, Tracy Morgan, Adam Sandler, Cedric the Entertainer, Jerry

Reality bites A comic trying to prove his artistic mettle, Rock's Andre Allen is engaged to a reality-TV diva played by Gabrielle Union

Seinfeld, Jay Pharoah, Kevin Hart, Sherri Shepherd and Leslie Jones all make appearances. For Rock, though, Rosario Dawson was the key to the whole movie.

"She makes it emotional," Rock says. "I had to beg her to do the movie, and it's the luckiest thing that happened. She should get a damn producer credit because she made her character so much better than what was on the page."

He isn't being self-effacing; Dawson backs him up on that. "I was hesitant," she says about signing on to the film. "But he gave me a lot of creative license to develop the dramatic stuff, and I trusted him to help me out with the funny." In particular, shooting one ludicrously vulgar sequence involving hot sauce used during a sex act made her squirm. "He was like, 'I know you're panicking, wondering what's going on with your career and your life choices. I promise you it's going to be O.K. I'm telling you, it's funny.'"

Rock is funny, and *Top Five* should, at the very least, serve to remind audiences of that after a lackluster streak. "I've been in movies that made hundreds of millions of dollars that no one has ever called me and offered me a job because I was in," he says. Rock is looking for a different kind of return now. "I hope that the movie actually is successful," he says. "But the most important thing is that somebody wants to work with me again. I can make a billion dollars, but if no one wants to hire me, what's the point?" ■

FAMILY FLICKS AND COMEDY

The lighter side of the holiday movie market

PENGUINS OF MADAGASCAR NOV. 26

The most consistent laughs in the *Madagascar* franchise came from these wily Antarctic birds. Now they get their own spin-off.

HORRIBLE BOSSES 2 NOV. 26

Work continues to bedevil American moviegoers, who loved the first round of this cubicle comedy starring Jason Sudeikis, Jason Bateman, Jennifer Aniston and Charlie Day. This time, their awful superiors are updated with performances from Jamie Foxx and Christoph Waltz.

LIFE PARTNERS DEC. 5

Leighton Meester and Gillian Jacobs are longtime besties whose friendship is challenged when a handsome doctor (Adam Brody) arrives on the scene.

TOP FIVE DEC. 12

Chris Rock directs, writes and stars in this story of a comedian struggling to feel relevant after years in the spotlight. Gabrielle Union and Rosario Dawson co-star.

GOODBYE TO ALL THAT DEC. 17

Angus MacLachlan, the writer of *Juno*, directs this black comedy about a divorced man (Paul Schneider) looking to reinvent his life.



MOVIE
CALENDAR

ANNIE
DEC. 19

Jamie Foxx is Daddy Warbucks. Quvenzhané Wallis (*Beasts of the Southern Wild*) is the orphan, and Cameron Diaz is Miss Hannigan.

**NIGHT AT THE MUSEUM:
SECRET OF THE TOMB**

DEC. 19

The third installment of the family-adventure franchise starring Ben Stiller is notable for featuring the last performances by two beloved stars: Robin Williams and Mickey Rooney.

THE INTERVIEW

DEC. 25

Seth Rogen and James Franco play TV newsmen caught up in a plot to kill North Korean leader Kim Jong Un.

BIG EYES

DEC. 25

Tim Burton directs this biopic about Margaret Keane (Amy Adams), the woman who created all those "big eye" paintings of children in the 1950s and '60s. Her husband Walter (Christoph Waltz) took all the credit for her work.

The Penguins of Madagascar meet characters voiced by Benedict Cumberbatch, John Malkovich and Ken Jeong



REAL TO REEL

Bringing a true story to the screen takes more than just getting the look right—but this year's crop of holiday movies are off to a good start

SELMA

British actors David Oyelowo and Carmen Ejogo play Martin Luther King Jr. and wife Coretta



UNBROKEN

Jack O'Connell gives a star turn as Olympic athlete turned POW Louis Zamperini



WILD

Reese Witherspoon is 12 years older than Cheryl Strayed was when she hiked 1,100 miles



BIG EYES

Amy Adams hid her trademark red hair to play beloved artist Margaret Keane



Decolor My World

To sell our home, we had to stage it. That meant white paint, a screening room and no TV



ALTHOUGH WE ARE COMPLETELY happy with our home, my lovely wife Cassandra and I are moving to a new house a half-mile away in Los Angeles that's even older and more expensive and falling apart faster. We're doing this so we can fight over trivial things instead of actual marital problems. You can't hurt someone much when you tell her she selects tiles just like her mother.

As a bonus, we've gotten to fight over selling our old house. We both naively assumed that the process involved showing our house to potential buyers. This, our real estate agent informed us, is indeed how Neanderthals sold their caves. But no one in today's market would look at our house and decide to live there. That's because, by the standards of professionals, we are disgusting people who live disgusting lives.

Our first problem was that our walls were painted in what is called "personal colors." A personal color is a color that isn't white. So we had to pay a painter several thousand dollars to impersonalize our colors. And buy white towels and white linens. In people's dream lives, they live in hospitals.

We also had to hire a stager. Our real estate agent hooked us up with Arthur King at LA Salvage, whom we paid \$7,000 to take away all our gross personal stuff and replace it with way less of his stuff for three months. Cassandra found this process incredibly stressful and abandoned our house for three days as people rearranged our lives. As Biggie Smalls would have said, Mo' money, mo' women and gay men in your house all the time.

Despite the fact that the activity people enjoy most at home is watching television, we had to get rid of our TV. Apparently buyers like to imagine a new life in a new home where they talk about politics, read Aristotle and look at cheap giant metal paintings. All of our useful

stuff had to go, since people don't want to think about brushing their teeth, printing documents, blowing their nose, tossing garbage, making coffee, blending anything, talking on the phone or heavily drinking hard alcohol to forget their idiotic real estate transactions. They also don't have home offices, so I am writing this column on a desk in our garage, which has a huge empty wooden box marked RETURNED LETTERS. This is very useful, since I'm always yelling, "Honey, you know all those letters I always send without stamps or correct addresses? Where do we stack those up?"

Staging, which a few years ago was just for superrich people, has trickled down to mid-priced houses; there are 1,000 members of the Real Estate Staging Association, and Meredith Baer Home is a nationwide staging firm. So the super-rich are now also producing short movies about their houses. For an average of \$12,500, filmmaker Curt Hahn will show a house through a story, of, say, a dad's surprise birthday party in which his uniformed son who is stationed overseas Skypes in before appearing from behind the screen to hug his dad. After watching it, I wanted to own that house and invade a foreign country.

So I got some friends who make great YouTube videos to shoot my movie for free. Hahn suggested that they aim for the kind of buyer we were when we bought the house: childless, new to L.A. and with values I could live with. Because buyers could be from overseas, he said, we should eliminate as much dialogue as possible and include multiracial families. This made even more sense when I watched *Guess Who's Coming to Dinner* on mute and appreciated all the exposed brick and natural light.

My friends, however, are comedy writers, so they made a movie about two detectives who admire the house while questioning a woman named Cassandra about her husband's untimely death, life-insurance policy and cost of their new screening room. It contains lines such as:

Detective No. 1: Four bedrooms, three bathrooms. This place is big enough for practically any family.

Detective No. 2: Or ... the scene of a murder.

If we find a buyer shortly after this column comes out, I'm thinking of starting a new business where I write a column about the house you're selling. It's the only way we're going to be able to pay for any of these renovations.



Our son Laszlo's playroom is no longer a dark room with a tiny window that no one would like but a screening room, with one row of theater seats, a glass jar of stale popcorn and red curtains drawn back to reveal a painting of a magical medieval village. When I saw it, I got incredibly bummed over the fact that I had lived in the house for eight years without knowing I had a screening room.

Over the past week, I've found a sailboat in a bottle, a model sailboat, two paintings of sailboats and a mason jar filled with a coiled nautical rope. We are trying to sell our property to someone who does not even want to be on land.

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10 Questions

Philanthropist Melinda Gates on her campaign for contraceptives, her daughters and her growing optimism

You just turned 50. Did that change how you look at life?

I used my 50th birthday to look forward and say, "I basically have 25, maybe 30 great years of working life left. What do I want to accomplish?" And so it means at the [Gates] Foundation, I've let go of a few of the science meetings. I trust Bill has those. I'm taking more meetings about women's and girls' issues and the cultural behavior-change pieces of that. And we've [taken on] contraceptives and raised \$2.3 billion.

Are there technological breakthroughs in contraceptives?

This is a field where we haven't done much research in the last 20 years. One day we might be able to have a contraceptive that would dissolve, like a breath mint, that she'd be able to put in her vagina, and it will last, say, 30 days. Or it's an implant that you can put in your arm that lasts three to five years. We've gotten those down to two very small rods, and after the London Family Planning Summit we have money, so we helped work with manufacturers and brought the prices down by half.

You were raised Catholic. Clearly, you're a big believer in contraceptives. Do you draw a line at abortion?

The foundation only funds contraceptives. We do not do the abortion piece. But

then again, we always try to work upstream. With contraceptives, you don't put the woman in a situation where she needs to make that decision.

Last year you gave away about \$3 billion. Do you worry that people think, "Well, the Gates folks have got this. What's the point of throwing in my \$20?"

We try to always remind people that all the foundation can do is take some experiments and some risks where the government can't or won't. We could spend all of the foundation's money just trying to solve HIV/AIDS, tuberculosis and malaria. I try and get people to look at where their passion is and just start somewhere.

Do you worry about your children and your great wealth?

You teach children your values, and you try to live those values out. My belief is that if you do that, they're going to turn out O.K. I think sometimes with greater wealth, people get away from living their values for whatever reason. Maybe the wealth pulls them in or they start taking fancy trips.

What would you do if your daughters said, "I'm not interested in a STEM [science, tech, engineering, math] career?"



For her 50th birthday, Gates had a *Sound of Music* party in Austria, with lederhosen, a sing-along and waltzes

I'd say, "Go where your passion is."

Even if it's modeling?

Well, I'd try to steer them in a different direction. That one would be tough for me.

You've been calling for more data on child brides. Given that even one underage girl married against her will is too many, why do we need data before we act?

You have to know where child marriages are happening, and specifically what countries and what regions, and in what ways. That will inform where you go to do the work. Without data, I don't really know how to act.

Does the world's richest man ever unload the dishwasher?

Actually, no, but he loads it. After dinner, we all do the dishes together. He likes to wash the dishes. He grew up with his sister washing the dishes. He will load, but his preferred thing is to wash. He does not like to unload. Or, we don't make him unload—put it that way.

You often say that you and Bill are impatient optimists. As you've been in this philanthropy business for a long time, have you become more patient or less optimistic?

No, I'm impatient. I want to get contraceptives done. I want to halve child mortality yet again. When you travel and meet people, you see that if they have that one tool, they lift themselves up. I'd say we're less naive but more optimistic.

—BELINDA LUSCOMBE

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